CURTIS'S
BOTANICAL MAGAZINE,

COMPRISING THE
Plants of the Royal Gardens of Kew
AND
OF OTHER BOTANICAL ESTABLISHMENTS IN GREAT BRITAIN;
WITH SUITABLE DESCRIPTIONS;

BY
JOSEPH DALTON HOOKER, M.D., C.B., F.R.S., L.S., &c.
D.C.L. OXON., LL.D. CANTAB., CORRESPONDENT OF THE INSTITUTE OF FRANCE.

VOL. XXIX.
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(Or Vol. XCIX. of the Whole Work.)

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Mo. Bot. Garden,
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TO

DAVID MOORE, PH.D., F.L.S., M.R.I.A.,

SUPERINTENDENT OF THE ROYAL DUBLIN SOCIETY'S BOTANIC GARDEN, GLASNEVIN.

DEAR DR. MOORE,

I have great pleasure in dedicating a volume of the "BOTANICAL MAGAZINE" to one who, whilst maintaining a very rich and beautiful Botanical Garden at a high standard of excellence, has advanced Botanical Science by many original observations and experiments.

I further gladly embrace this opportunity of testifying to the value of your contributions to the British and especially the Irish Flora, which you have enriched by the discovery of many new and interesting indigenous plants; by the publication, with Mr. A. Moore, of the "Cybele Hibernica," and by your "Synopsis of Irish Mosses."

Believe me,

Dear Dr. Moore,

Very faithfully yours,

JOS. D. HOOKER.

ROYAL GARDENS, KEW,
Dec. 1*st*, 1873.

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Director of the Royal Botanic Gardens of Kew.

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TAB. 6009.

MUTISIA ILICIFOLIA.

Native of Chili.

Nat. Ord. COMPOSITÆ.—Tribe MUTISIEÆ.

Genus MUTISIA, *Linn. f.; (DC. Prodr.*, vol. vii. p. 4).

MUTISIA *ilicifolia;* glabra v. ramulis foliisque subtus araneoso-tomentosis, caule scandente angulato v. alato alis spinulosis, foliis sessilibus oblongo-cordatis truncatis v. 2-lobis spinoso-dentatis rigide coriaceis cirrhiferis, pedunculis axillaribus 1-floris, involucri cylindracei bracteis ovato-oblongis apice rotundatis muticis v. appendiculatis, v. infimis ovato-lanceolatis spinescentibus interdum refractis, floribus radii 8-12 pallide roseis, ligula anguste lanceolata acuminata.

MUTISIA ilicifolia, *Cav. Ic.*, vol. v. p. 63, t. 493; *DC. Prodr.*, vol. vii. p. 7; *Hook. Bot. Misc.*, vol. i. p. 7, t. 4; *Paxton's Magazine of Botany*, vol. xv. t. 101, *cum ic.*; *Gay Flor. Chilen.*, vol. iii. p. 266.

M. spinosa, *Ruiz et Pav. Syst.*, p. 193; *Less. in Linnæa*, 1830, p. 271; *DC., l.c.*

M. auriculata, *Less. ex Hook. et Arn. Comp. Bot. Mag.*, vol. i. p. 107.

M. latifolia, *Don in Trans. Linn. Soc.*, vol. xvi. p. 270; *Sweet Brit. Fl. Gard.*, Ser. 2, t. 288.

M. Gayana, *Remy in Gay Flor. Ghilen.*, vol. iii. p. 268; *Walp. Ann.*, vol. i. p. 990.

M. Lechleri, *Schultes Bipont. in Herb. Lechler.*

A charming green-house plant, introduced into England in 1832, from Chili, where it appears to be common around Valparaiso and elsewhere, climbing amongst bushes. Sweet informs us it was then not uncommon in English collections, but rarely flowered, whence he recommended its cultivation in the open border against a trellis. It next appeared in *Paxton's Magazine*, since which I find no notice of it till October of last year, when my friend Mr. Wilson Saunders sent me the specimen from which the accompanying drawing was made. *M. ilicifolia* is a very variable plant indeed, as the numerous synonyms cited above show; it varies especially in the stem being winged and spinous-toothed, or wingless; in the depth of the sinus at the base and apex of the leaf, and in its under-surface being glabrous or clothed with a white or brown cobwebby tomentum; in the bracts of the involucre being all rounded at the point, or some or all terminated by a claw or foliaceous appendage, or the lower of them being much produced, lanceolate pungent and spreading or reflexed; and finally in the number and breadth of the ray-flowers. A series of twenty-five native specimens in the Herbarium displays all these variations, graduating into one another.

DESCR. A climbing slender shrub, glabrous or with the branches, peduncles, and leaves beneath clothed with cobwebby tomentum. *Leaves* one to two inches long, spreading, sessile oblong, deeply cordate or auricled at the base, tip truncate or bifid or 2-lobed, margins spinous-toothed, rigidly coriaceous bright green above, pale beneath, nerves reticulate; cirrhus stout. *Heads* axillary, solitary, peduncled, three inches in diameter. *Involucral bracts* many-seriate, very variable (as described above). *Ray-flowers* eight to twelve, pale pink or purplish; ray narrowly lanceolate, acuminate; inner lip very small, 2-toothed. *Disk-flowers* with a short revolute outer lip and smaller 2-partite revolute inner one. *Pappus* hairs pilose.—*J. D. H.*

Fig. 1, Ray-flower; 2, pappus-hair of the same; 3, disk-flower; 4, one of its pappus-hairs:—*all magnified.*

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TAB. 6010.

ANDRYALA MOGADORENSIS.

Native of Marocco.

Nat. Ord. COMPOSITÆ.—Tribe CICHORACEÆ.

Genus ANDRYALA, *Linn.; (DC. Prodr.*, vol. vii. p. 245).

ANDRYALA *mogadorensis;* fruticosa, robusta, tota dense albo-lanuginosa et superne glanduloso-pilosa, foliis confertis sessilibus $\frac{1}{2}$-amplexicaulibus basi obtusis cordatisve oblongis oblongo-spathulatis ovatis v. cordiformibus obtusis v. apiculatis integerrimis v. sinuato-dentatis, infimis petiolatis spathulatis, corymbis foliosis, involucri hemispherici bracteis basi connatis subulato-lanceolatis acuminatis longe glanduloso-pilosis, ligulis 5-dentatis, receptaculo dense setoso.

ANDRYALA mogadorensis, *Cosson in Herb. Balansa.*

This beautiful undershrub forms snow-white masses on a little rocky islet in the bay of Mogadore, on the Western Marocco Coast, in lat. $31\frac{1}{2}^\circ$ N., and has hitherto been found nowhere else. It was discovered by Balansa in 1868, and gathered by Messrs. Maw, Ball, and myself there in May, 1871. Mr. Maw was so fortunate as to transmit a living plant to his garden at Benthal Hall, Broseley, which flowered in the following April, and is here figured.

The genus *Andryala* is chiefly a Mediterranean one, and finds its south-western limit in Marocco and the Canary Islands. Most of the species are herbs, with little to recommend them to the horticulturist, the present one being considerably the most handsome of those known to me.

DESCR. A small undershrub, one to two feet high, with straggling habit, densely clothed with a thick snow-white appressed tomentum, and the upper parts and inflorescence especially covered with spreading black glandular hair. *Leaves* crowded, very variable in size and shape, the radical

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obovate-spathulate and contracted into a long petiole, together four inches long; the cauline one to two inches long, sessile, cordate or auricled at the base, ovate and concave, or oblong and flat, or spathulate-oblong, quite entire or sinuate-toothed, tip rounded, sometimes mucronate. *Corymbs* leafy, terminating the branches, with six to ten heads, of which one or two open at a time. *Heads* shortly and stoutly pedicelled, one and a half inches in diameter, golden-yellow. *Involucre* hemispherical, densely glandular; bracts connate below, free portions uniseriate or sub-biseriate, subulate-lanceolate, acuminate, spreading, fringed with long glandular hairs. *Legumes* strap-shaped, truncate, with five long acute teeth. *Achenes* small; pappus hairs silvery white, slender, scabrid.—*J. D. H.*

Fig. 1, Radical leaf of the natural size; 2, outer floret; 3, style arms; 4, pappus hair:—*all magnified.*

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TAB. 6011.

RHYNCHANTHERA GRANDIFLORA.

Native of North Brazil and Guiana.

Nat. Ord. MELASTOMACEÆ.—Tribe MICROLICIEÆ.

Genus RHYNCHANTHERA, *DC.; (Benth. and Hook. f. Gen. Pl.*, vol. i. p. 738).

RHYNCHANTHERA *grandiflora;* patentim pilosa, caule ramoso, ramis ramulisque teretibus, foliis petiolatis ovato-cordatis acuminatis serrulatis 7-nerviis, paniculis terminalibus multifloris, bracteis foliaceis supremis sessilibus, calycis tubo ovoideo, lobis subulatis, petalis elliptico-obovatis acutis roseis, staminibus 10, uno maximo, quatuor mediocribus et quinque minutis imperfectis.

RHYNCHANTHERA grandiflora, *DC. Prodr.*, vol. iii. p. 107; *Trina in Trans. Linn. Soc.*, vol. xxviii. p. 31.

R. monodynama, *DC. l.c.*

RHEXIA grandiflora, *Bonpl. Rhex.*, p. 26, t. 11.

MELASTOMA grandiflora, *Aubl. Pl. Guian.*, vol. i. p. 414, t. 160.

OSBECKIA Aubletiana, *Spreng. Syst. Veg.*, vol. ii. p. 311.

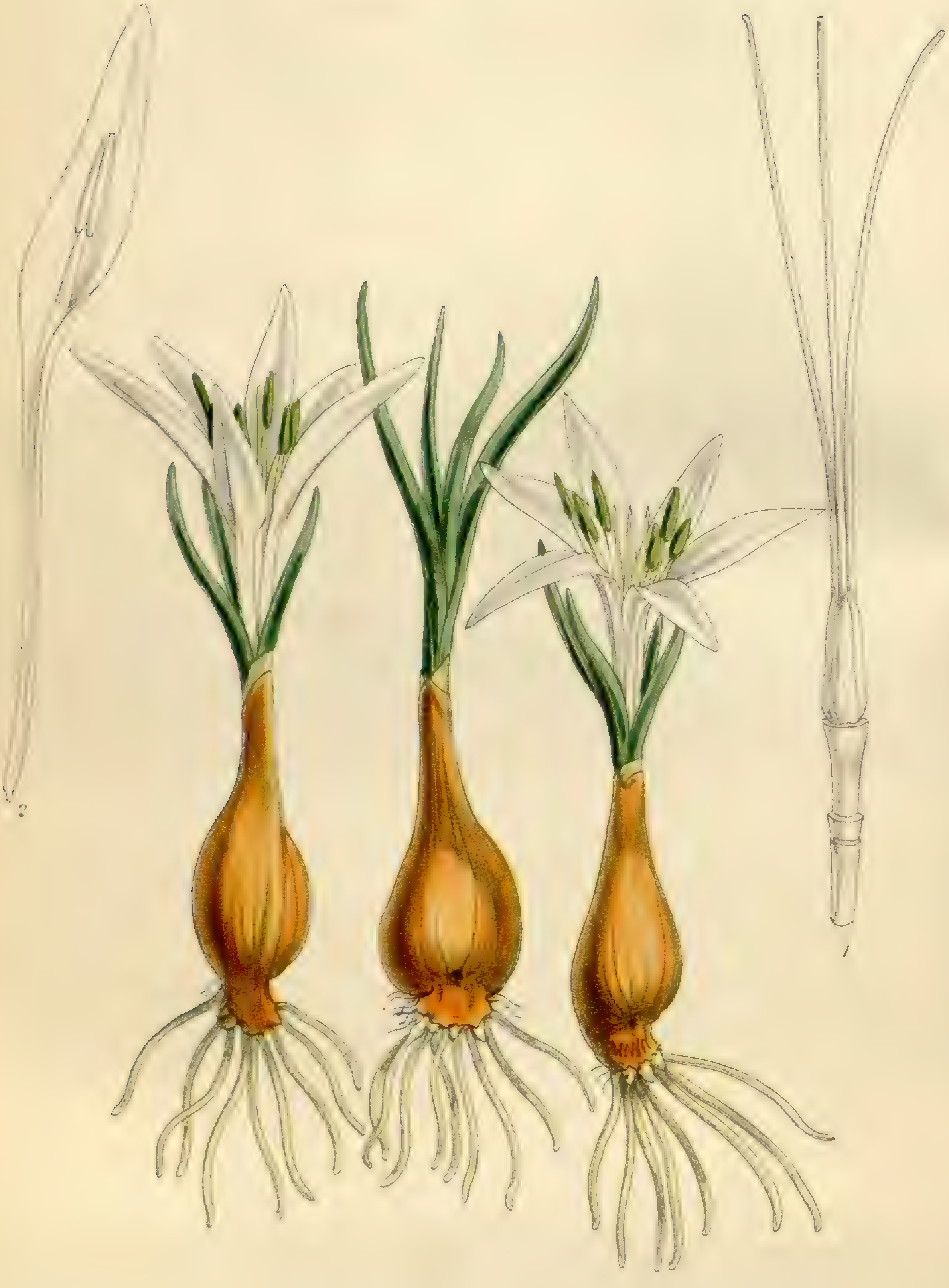
Apparently common in Eastern South America, north of the tropic, being found from the Amazons to Demarara, growing in moist savanahs, and attaining six feet in height. It is a beautiful plant, easily grown, and well worthy of cultivation, throwing out a profusion of its rose-coloured flowers in the autumn months in England, and in November and December in its native habitat. The single large stamen, arching down over the four smaller ones, is a very singular feature of the flower; it probably contains pollen of a different potency from what the anthers of the others contain. As in most *Melastomaceæ*, the style, though curved in the same direction as the stamen, is also thrown back, so as to remove the stigma far from the anthers. It would be very interesting to know the significance of this arrangement, which, no doubt, serves so to direct the visits of insects as to insure cross fertilization.

R. grandiflora was sent to the Royal Gardens by Mr. Bull, F.L.S., of Chelsea, who introduced it from Demarara.

Descr. An undershrub, five to six feet high, erect, much branched, clothed more or less densely with rather stiff spreading hairs. *Stem* and *branches* cylindric. *Leaves* two to three inches long, broadly ovate-cordate, acuminate, serrulate, 7-nerved, hairy on both surfaces, especially on the nerves beneath, bright-green above, paler beneath, transverse nerves slender; petiole variable in length, half to one inch. *Panicles* six to ten inches long, lax, leafy, slender, erect, branched; bracts leafy, uppermost sessile and lanceolate. *Flowers* two inches in diameter; pedicels short, slender. *Calyx* one-third inch long, ovoid or urceolate, hispid; lobes subulate or filiform. *Petals* elliptic-obovate, acute or apiculate, bright rose-coloured. *Stamens* sharply arched forward, the dorsal much the largest, with a red filament, clavate connective and yellow recurved beaked anther; four smaller stamens not half the size; five smallest rudimentary. *Style* slender, red.—*J. D. H.*

Fig. 1. Flower with petals removed; 2, petal and rudimentary stamen:—*both magnified.*

6012



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TAB. 6012.

MERENDERA AITCHISONI.

Native of the Panjab.

Nat. Ord. MELANTHACEÆ.—Tribe COLCHICEÆ.

Genus MERENDERA, *Raymond.*—BULBOCODIUM § MERENDERA; (*Endl. Gen. Pl.*, vol. i. p. 137).

MERENDERA *Aitchisoni;* cormo ampullæformi uno latere obtuse carinato basi contracto oblique in discum producto, disco truncato facie inferiore radices emittente, tunicis pallide flavo-brunneis, collo elongato, vagina membranacea, foliis anguste linearibus acutis $\frac{1}{6}$-poll. latis concavis, flore $1\frac{1}{2}$-poll. diam., perianthii pallide lilacini lamina ungue gracili breviore lanceolata dorso basin versus carinata, antheris virescentibus.

BULBOCODIUM, *Sp.*, *Aitchison, Cat. Plants Punjab & Sindh.* p. 151.

The genus *Merendera*, regarded by some, and perhaps rightly, as a division of *Bulbocodium*, has been hitherto supposed to find its Eastern limits in Persia, where *M. caucasica*, a species very clearly allied to the present, has been collected by Kotschy. The genus was first detected east of the connecting ranges of our Indian possessions by Major Vicary, who, about twenty years ago, sent to Sir W. Hooker fragments of a species which I suppose to be identical with this, from the Mar-gulla Pass of the Salt range in the Panjab. More recently it has been found near Jhelum, in the same district, by Dr. Aitchison, F.L.S., an ardent botanist, and author of a very valuable catalogue of the plants of the Panjab, &c. During last summer Dr. Aitchison sent bulbs to Kew, which flowered in November of the present year, and are here figured.

As a species there is little at first sight to distinguish the *M. Aitchisoni* from *M. caucasica*, which extends from Persia eastward to Asia Minor, and from the tropical African *M.*

abyssynica, A. Rich. (*M. longispatha*, Hochst, and *M. Schimperiana*, Hochst), except the very pale colour of the tunic of the corm, a character not likely to vary; to which others would probably be added could living specimens be compared. The flowers are fragrant.

DESCR. *Corm* one and a half inches long, flaggon-shaped, with a long neck, compressed and obtusely keeled on one side; base contracted and produced into an oblique sublateral disk, that roots from its under-surface; tunic a very pale chestnut brown colour. *Sheath* short, scarious, mouth obliquely truncate. *Leaves* one to two inches long whilst the plant is flowering, about one-sixth inch broad, acute, concave, dark-green, rather fleshy, lengthening to six and eight inches when the plant is in fruit. *Flower* one and a half to two inches in diameter, pale lilac, funnel-shaped; *perianth* segments with a very slender claw and lanceolate obtuse blade, which is keeled at the back towards the base, keel pale reddish. *Filaments* inserted at the base of the blade, subulate, equalling the linear obtuse greenish anther. *Ovary* narrow; styles quite free, filiform.—*J. D. H.*

Fig. 1, Scape and ovary; 2, perianth-segment and stamen:—*both magnified.*

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TAB. 6013.

DENDROBIUM HOOKERIANUM.

Native of Assam and Sikkim.

Nat. Ord. ORCHIDEÆ.—Tribe MALAXIDEÆ § DENDROBIEÆ.

Genus DENDROBIUM, *Swartz; (Lindl. Gen. & Sp. of Orchid.*, p. 24).

DENDROBIUM (Holochrysa) *Hookerianum;* caulibus fasciculatis foliosis, foliis oblongo-lanceolatis acuminatis nervosis, racemis axillaribus paucifloris, bracteis minutis, floribus amplis aureis, sepalis petalisque conformibus oblongis acutis integerrimis, labello late orbiculato-cordato velutino profunde fimbriato, fimbriis barbellatis, intus basin versus maculis 2 purpureis ornato, ungue convoluto intus calloso, mento conico apice rotundato.

DENDROBIUM Hookerianum, *Lindl. in Journ. Linn. Soc. Lond.*, 1859, vol. iii. p. 8.

D. chrysotis, *Reichb. fil. in Gard. Chron.*, 1870, p. 1311.

I am indebted to Mr. F. W. Burbridge, formerly of Kew, and now of the Fairfield Nurseries, for the opportunity of figuring this, which is the largest flowered and freest flowering species of the section to which it belongs. Mr. Burbridge describes it as growing vigorously in a Cattleya-house, flowering in September and October, and being especially valuable as a decorative plant, because of the habit (previously noticed by Dr. Masters, in *The Gardener's Chronicle*) of flowering synchronously with the foliage, which is abundant and of a lively green. A specimen grown by Mr. Petch, the gardener at Manley Hall, near Manchester, produced at one time twenty-five racemes, with as many as nine flowers on a raceme, and this on a single plant.

Dendrobium Hookerianum is stated to come from Assam, which is very possible, as I discovered it in the neighbouring province of Sikkim in 1848, growing on trees in hot valleys, at an elevation of 1–5000 feet above the sea. In an excellent drawing of it which I possess, made by a native artist, the stems are figured as thick as the little finger, and the numerous racemes are only 3–4-flowered, but each flower is upwards of four inches in diameter. It is very closely allied to *D. fimbriatum*, Wall. a native of the adjoining province of Nipal, but differs in the much larger size, in flowering on the leafy stems, in the quite entire (not toothed) margins of the sepals and petals, and in the double blotch on the lip.

Descr. *Stems* tufted, two to three feet long, grooved, green or purplish. *Leaves* distichous, three to five inches long, oblong-lanceolate, acuminate, recurved. *Racemes* borne on the leafing stems, shortly peduncled, 3–9-flowered, spreading; peduncle and pedicels slender, green; bracts small, appressed. *Ovary* slender. *Perianth* three to four inches in diameter, golden-yellow, with two red-purple blotches on the disk of the lip. *Sepals* and *petals* equal and similar, spreading, oblong, acute, margins quite entire. *Lip* with a convolute claw and almost circular or more or less ovate or cordate repanded limb, which is velvetty on the surface and deeply cut along the edge into equal and equidistant bearded fringes nearly half an inch long; callus oblong, adnate to the claw and concealed by its convolute margins; mentum conical, rounded at the apex.—*J. D. H.*

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TAB. 6014.

VRIESIA BRACHYSTACHYS.

Native of Brazil.

Nat. Ord. BROMELIACEÆ.—Tribe TILLANDSIEÆ.

Genus VRIESIA (*Lindl. in Bot. Mag.*, t. 4382).

VRIESIA *brachystachys;* glabra, foliis e basi lata late loriformibus acutis recurvis concavis integerrimis viridibus, scapo rubro foliis longiore, vaginis acutis appressis, spica ovato-oblonga lata valde compressa disticha, bracteis 1-floris basi imbricatis fere horizontalibus falcato-lanceolatis acuminatis compressis infra medium rubris dein viridibus, floribus bracteis excedentibus flavis elongatis 3-gonis, perianthii laciniis exterioribus coriaceis carinatis lineari-oblongis obtusis, interioribus in tubum apice 6-fidum apicibus viridibus coherentibus, squamis ad basin tubi perianthii oblongis obtusis.

VRIESIA brachystachys, *Regel in Gartenflora*, 1866, p. 258, t. 518.

A very brilliant stove plant, first made known by Dr. Regel, from a specimen received at the Imperial Gardens of St. Petersburgh, from Messrs Booth and Sons, of Hamburgh, about ten years ago, when, however, its native country was unknown. This, however, we have ascertained to be Brazil, through specimens collected in that country by Dr. Burchell, who gathered them in the province of S. Paolo.

The spike in both Regel's figure and Burchell's specimens is very small indeed (not two inches long), compared with that represented in our plate, which is a faithful representation of a specimen which flowered in Mr. Rucker's establishment at Wandsworth in November of last year. The stamens are much longer too than those represented in the Gartenflora; but this is probably due to imperfect development of the latter. The genus *Vriesia* has been reduced to *Tillandsia*, from the typical species of which the present plant differs in the form of the inner perianth segments, which are not spirally convolute in age.

DESCR. *Stem* at the base, as clothed with the leaves, one

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and a half inches in diameter. *Leaves* four to six inches long by one to one and a half inches broad, spreading and recurved, pale rather glaucous green on both surfaces, membranous, broadly strap-shaped from a dilated sheathing base, tip rounded with a mucro, or acute, faintly striate. *Scape* six inches long, stout, cylindric, scarlet, clothed with small appressed erect sheaths, with green tips, the lower of which are acute and the upper elongate and acuminate. *Spike* five inches long by four inches broad, broadly ovate, distichous, very much compressed, rachis scarlet. *Bracts* closely imbricating at the base, nearly horizontal, two inches long, lanceolate with acuminate incurved points, laterally much compressed, 1-flowered, green beyond the middle, scarlet below it. *Flowers* projecting half an inch beyond the bracts, elongate, bluntly trigonous; ovary oblong. *Perianth* pale yellow, outer segments linear-oblong, coriaceous, keeled, rounded at the tips; inner, twice as long as the outer, cohering nearly to the tips, which are dark green. *Scales* within the base of the perianth oblong, obtuse. *Filaments* filiform; anthers linear, yellow, their tips exserted. *Style* thickened at the base, flexuous; stigmas 3, short. *Capsule* (in dried specimen) trigonous, valves rigid pungent, back deeply wrinkled.—*J. D. H.*

Fig. 1, Flower; 2, style and stigmas; 3, segment of inner perianth, stamen and scales:—*all magnified.*

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AND

TRAP-DOOR SPIDERS.

NOTES AND OBSERVATIONS ON THEIR

Habits and Dwellings.

BY

J. TRAHERNE MOGGRIDGE, F.L.S.

LONDON:
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1873.

In the first part of this work the Author shows that certain South-European Ants do employ grain and seeds as food, and are possessed of the provident habits attributed to them by the Ancients but denied by some of the most able naturalists of modern times. The manner in which these ants cut, carry, and store their harvest, and treat sprouted seeds, as also the structure of their granaries and passages, sometimes excavated in the solid sandstone rock, with many other details, will be found illustrated and described here.

The second part contains an account of what is known of the habits and economy of the Trap-door Spiders, the explanations being accompanied by plates and woodcuts.

Those who have, up to the present time, described the dwellings of these spiders, speak only of a single, cylindrical burrow, lined with silk and closed at the mouth by a hinged door which lies level with, and is made to resemble, the surface of the earth.

Two new types of nest, found in the Riviera, are now added, and in these, besides the surface door, a second subterranean door is present, placed a short way down the tube, and this the spider closes in the face of any intruder who may have entered the nest. One of these double-door nests is branched, the other unbranched.

It is hoped that the present publication may serve to show that the field of observation afforded by the habits of living creatures is one which lies invitingly open to all true lovers of nature, and may still be explored with good hopes of making new and interesting discoveries.

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6015

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TAB. 6015.

BELLIS ROTUNDIFOLIA, VAR. CŒRULESCENS.

Native of Marocco.

Nat. Ord. COMPOSITÆ.—Tribe ASTEROIDEÆ.

Genus BELLIS, *Linn.; (Benth. and Hook. f. Gen. Pl.*, vol. ii. p. 265.)

BELLIS *rotundifolia;* perennis, foliis gracile petiolatis late ovatis orbiculatisve apice rotundatis sinuato-dentatis 3-nerviis appresse pilosis, scapo gracili pubescente, capitulo $\frac{3}{4}$-$1\frac{1}{4}$ poll. diam., involucri bracteis pubescentibus v. hirsutis subæqualibus, corollis radii albis v. azureis discique basin versus pilosulis, achæniis epapposis marginibus ciliatis.

BELLIS rotundifolia, *Boiss. et Reut. Pugill. Pl. Nov. Alger. et Hisp.*, p. 55, *excl. syn.; Wilkomm et Lange Prodr. Fl. Hisp.*, vol. ii. p. 32, *excl. syn.*

Var. *cœrulescens*, corollis radii azureis. *Bellis cærulescens, Coss. Mss. in Herb. Balansa.*

The Blue Daisy is one of the commonest spring flowers in various parts of Marocco, abounding in fields with a rich soil on the hills near Tangier, and occurring in great profusion by the water-courses of the valleys of the Greater Atlas in lat. 31°, at elevations of 4000 to 11,000 feet. In the low country between Tangier and the Atlas, as at Mazagan, Casa Blanca, Mogador, and the base of the Atlas, it was not found. Specimens brought by Mr. Maw and myself flowered both at Brosely and Kew, in May and September respectively; of these Mr. Maw's (here figured) were by far the most luxuriant, the specimen being twice as large as any gathered by myself in Marocco, and more glabrous. A pot-full of this species in flower presents a most beautiful appearance, from the delicate azure hue of the ray-flowers.

Bellis rotundifolia was first described from specimens collected by its discoverers, Messrs. Boissier and Reuter, in Oran, the westernmost province of Algeria (that adjoining

Marocco), in 1849, where it has since again been gathered by Balansa in 1852, and by Bourgeau in 1856. It was supposed by its discoverer to be the same as *Bellium rotundifolium*, Desfontaine (Flor. Atlant., vol. ii. p. 279, t. 235, f. 1), which is, however, a very different plant, with an obvious pappus, described in De Candolle's Prodromus as consisting of five paleæ alternating with as many bristles. The original form of *Bellis rotundifolia* has white flowers, and is common in Marocco; the blue variety of it was first found by M. Balansa, during his adventurous journey in Marocco in 1867.

DESCR. *Root* perennial. *Leaves* more or less pubescent, sometimes covered with scattered appressed hairs, at others more tomentose; petiole slender, one to three inches long; blade three-quarters to one and a quarter inches long, ovate orbicular or subcordate, sinuate-toothed, 3-nerved. *Scape* slender, much exceeding the leaves. *Heads* three-quarters to one and a quarter inches in diameter, quite resembling those of the common daisy, but with fewer often broader ray-flowers, which vary from white to pale blue.—*J. D. H.*

Fig. 1, Flower of ray; 2, flower of disk; 3, style-arms of ray flower; 4, ditto of disk flower:—*all magnified.*

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TAB. 6016.

ELLEANTHUS XANTHOCOMUS.

Native of Peru.

Nat. Ord. ORCHIDEÆ.—Tribe PLEUROTHALLEÆ.

Genus ELLEANTHUS, *Presl.*; (*Reichb. f. in Walp. Ann.*, vol. vi. 472.)

ELLEANTHUS *xanthocomus;* caulibus simplicibus, vaginis asperulis, foliis lanceolatis acuminatis summi vagina ampliata, racemo suberecto v. inclinato, bracteis scariosis e basi ovata subulato-acuminatis nervosis flavis inferioribus flores citrinos superantibus, ovario sepalisque ovato-oblongis obtuse carinatis papillosis, petalis obtusiusculis, labello obovato medio constricto marginibus involutis ultra medium dilatato laminaque parva apicali transverse oblonga 2-loba ciliato-dentatis, callis geminis elongatis ovatis a basi in medium labelli productis, carinis semi-lunatis transversis versus apicem ante-positis, columna utrinque angulata alis superne vix dilatatis.

ELLEANTHUS xanthocomus, *Reichb. f. in litt. ad Wilson Saunders.*

Professor H. Reichenbach has identified the well-known genus *Evelyna* with the previously published *Elleanthus* of Presl., who originally established it under this name in the "Reliquiæ Hænkeanæ," published in 1836, or five years before *Evelyna* was founded by Pœppig and Endlicher, in honour of the accomplished English dendrologist and author, John Evelyn; to whom the dedication of another genus more emblematic of his pursuits is most justly due.

Elleanthus xanthocomus was described by Dr. Reichenbach from specimens reared by W. Wilson Saunders, F.H.S., which were exhibited in May 1872, at the Royal Horticultural Society, and were received from Peru by Major Trevor Clarke, F.H.S.

The description given above is drawn up by the aid of one kindly communicated by Dr. Reichenbach, who made careful notes and observations on the figure of the calli, &c., in the lip, which are not represented in the accompanying drawing.

FEBRUARY 1ST, 1873.

Descr. *Stems* ten to twelve inches high, simple, erect, slender. *Sheaths* rough, the lower cylindric, the upper slightly inflated. *Leaves* suberect, five to seven inches long, lanceolate, acuminate, about 10-nerved besides the midrib, margins recurved, much contracted at the base, deep green above, paler beneath. *Spike* suberect or inclined, dense, two to three inches long, ovoid, shortly peduncled, many-flowered. *Bracts* yellow, tinged with green; lower one inch long, exceeding the flower, subulate-lanceolate from an ovate base; upper shorter, ovate, acuminate. *Flowers* crowded, bright yellow, sessile, half an inch long. *Ovary* short, papillose. *Perianth* closed. *Sepals* papillose, ovate-oblong, subacute, obtusely keeled. *Petals* as long, oblong, obtusely apiculate. *Lip* with the tip exserted, obovate or oblong, and panduriform from being contracted in the middle, margins strongly incurved; terminal lobe small, tranversely oblong, 2-lobed, margins and those of the outer end of the basal part of the lip erose and ciliate. *Calli* on the sides of the lip semilunar. *Column* scarcely dilated above.—*J. D. H.*

Fig. 1. Flower; 2, side, and 3, front view of lip; 4, column:—*all magnified.*

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Tab. 6017.

ALSOMITRA SARCOPHYLLA.

Native of Burma and Siam.

Nat. Ord. Cucurbitaceæ.—Tribe Zanonieæ.

Genus Alsomitra, *Roem.; (Benth. and Hook. f. Gen. Pl.*, vol. i. p. 840.)

Alsomitra *sarcophylla;* frutex scandens, ramosissimus, glaberrimus, foliis crasse carnosis breviter petiolatis 3-foliolatis, foliolis breviter petiolulatis ovatis v. elliptico- v. oblongo-ovatis obtusis integerrimis 3-nerviis medio sulcatis, cirrhis simplicibus, paniculis terminalibus et axillaribus multifloris, floribus parvis, sepalis oblongo-lanceolatis acuminatis corollæ lobis elliptico-ovatis acutis dimidio minoribus, staminibus parvis recurvis; "fl. ♀ perianthio ut in ♂, ovario clavato, stylis 3-4 brevibus conicis carnosis stigmatibus semilunaribus" (*Wall.*), fructu cylindraceo truncato, seminibus compressis testa muricata, ala oblonga hyalina.

Alsomitra sarcophylla, *Hook. f. in Benth. and Hook. f. Gen. Pl.*, l. c.

Zanonia sarcophylla, *Wall. Plant. As. Rar.*, vol. ii. p. 28, t. 133.

A singular climbing Evergreen plant, one of a small anomalous tribe of *Cucurbitaceæ*, which is distinguished by its five stamens, 1-celled anthers and ovary, and very curious fruit, which is almost cylindric, and opens by a tricrural slit at the truncate top. It is a stove-plant, and has remarkably fleshy bright green foliage, which is admirably adapted for decorative purposes, keeping fresh for a very long time, even without water. The flowers, which are individually insignificant, are produced in immense abundance. This plant is moreover recommendable from being very free from the attacks of scale and the other insect-pests of the hothouse. It is a native of forests in Burma and Siam, abounding in arid, sterile, and exposed situations along the banks of the Irrawaddy river, where it was discovered by Dr. Wallich in 1826, flowering in the month of November. Our plants were sent from the Calcutta Botanic Garden by the late Dr. Anderson about eight years ago, and flowered for the first time in November 1872.

Descr. A lofty climber, perfectly glabrous everywhere. *Stem* very slender, copiously branched; branches cylindric, pendulous. *Leaves* alternate, 3-foliolate, petiole very short, thick; leaflets two to three inches long, elliptic-ovate or oblong, or ovate-lanceolate, obtuse or apiculate, quite entire, very fleshy, one-tenth of an inch in thickness, bright green, and obscurely 3-nerved above, channelled down the middle, paler and reticulated beneath; petiolules about as long as the petiole. *Tendrils* quite simple. *Panicles* slender, axillary and terminal, pendulous, many-flowered, greenish-yellow. *Flowers* diœcious, shortly pedicelled, ebracteolate, one-third of an inch in diameter, very pale straw-coloured. *Sepals* ovate-oblong, acuminate, half as large as the rotate corolla, whose segments are elliptic-ovate and apiculate. *Stamens* small, recurved; anthers small, adnate, 1-celled. "*Ovary* club-shaped, 1-celled, many-ovuled; ovules parietal; styles three to four, short, conic, stigmas semilunar."—*Wall.* *Fruit* two inches long, subcylindric, obtusely 3-gonous, smooth, narrowed at the base into the pedicel. *Seeds* compressed; nucleus obovate; testa black, muricate; wing oblong, obtuse, hyaline. —*J. D. H.*

Fig. 1, Male flower; 2, the same, laid open; 3, stamen:—*all magnified;* 4, ripe fruit:—*natural size;* 5, ripe seed:—*natural size;* 6, seed:—*magnified.* Figs. 4—7 are taken from Herbarium specimens.

6018

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TAB. 6018.

BRACHYOTUM CONFERTUM.

Native of the Andes of Peru and Ecuador.

Nat. Ord. MELASTOMACEÆ.—Tribe OSBECKIEÆ.

Genus, BRACHYOTUM, *Triana; (Benth. and Hook. f. Gen. Pl.*, vol. i. p. 743.)

BRACHYOTUM *confertum;* frutex erectus, ramossissimus, setoso-hirtulus, foliis parvis petiolatis oblongis ovatisve acutis v. obtusis marginibus revolutis utrinque subappresse setulosis 3-nerviis, floribus pollicaribus terminalibus solitariis breviter pedicellatis pendulis basi 6-bracteatis, bracteis 2 foliaceis patentibus ceteris surborbiculatis cucullatis appressis, calycis segmentis late ovatis obtusis ovarioque sericeo-pilosis, corolla tubuloso-campanulata, petalis saturate purpureis oblique late obcordatis ciliolatis, antheris recurvis basi breviter appendiculatis, ovario libero, capsula apice obtuse 5-dentata.

BRACHYOTUM confertum, *Naud. in Trans. Linn. Soc.*, vol. xxviii. p. 49.

CHÆTOGASTRA conferta, *DC. Prodr.*, vol. iii. p. 135; *Naud. in Ann. Sc. Nat. Ser.* 3, vol. xiv. p. 136; *Jameson Synops. Plant. Equit.*, vol. i. p. 228.

RHEXIA conferta; *Bonpl. Rhex.*, t. 20.

A very singular and beautiful Melastomaceous shrub, abundant on the Andes of Ecuador and Peru, where it must form a very conspicuous and attractive feature in the landscape. It was introduced by our friend Professor Jameson, late of Quito, who transmitted seeds from hills near Cuenca to Isaac Anderson Henry, Esq., of Trinity, Edinburgh, who raised the plant and flowered it profusely in a greenhouse, when eighteen inches high, in November last. We have herbarium specimens gathered in the Chachapoyas province of Peru by Matthews, and at Loja and Cuenca, both in Ecuador, by Seemann and Jameson. It was discovered by Humboldt and Bonpland in the beginning of the century. The figure in Bonpland's "Melastomaceæ" is most unsatisfactory, and evidently coloured from a dried specimen or description.

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DESCR. An erect *bush*, very much branched; branches suberect, cylindric, upper clothed with spreading rigid flexuous bristles, which are variable in quantity and length, being much softest and sparsest in the cultivated specimens. *Leaves* crowded, shortly petioled, a quarter to one-third of an inch long, coriaceous, ovate or oblong, obtuse or acute, margins revolute, clothed above and beneath with subappressed bristles, nerves one on each side the very stout midrib. *Flowers* solitary, terminal, shortly pedicelled, pendulous, together with the bracts upwards of an inch long, each with two opposite spreading leaf-like bracts, and four decussating orbicular concave coriaceous appressed ones, the inner of which reach the base of the calyx-lobes, all as well as the calyx clothed with appressed rather silky bristles; the four inner bracts are pale yellow-green, the outer pair suffused with red. *Calyx-tube* broadly ovoid, lobes five, large, broadly ovate, concave. *Corolla* tubular, deep violet-purple. *Petals* broadly obliquely obcordate, ciliate, convolute. *Stamens* included, filaments short; anthers linear, with short basal appendages. *Ovary* free, appressed, strigose, 5-celled, 5-angled, with five obtuse terminal auricles.—*J. D. H.*

Fig. 1. Leaf; 2, petal; 3, calyx and stamen; 4, vertical section of ditto; 5, stamen:—*all magnified.*

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TAB. 6019.

ZINGIBER PARISHII.

Native of Moulmein.

Nat. Ord. SCITAMINEÆ.—Tribe ZINGIBERÆ.

Genus ZINGIBER, *Gærtn.*; (*Endlicher Gen. Plant.*, vol. i. p. 222.)

ZINGIBER *Parishii;* fere glaberrima, caule foliato gracili 3-pedali, foliorum lamina 4-7-pollicari elliptico-lanceolata acuta in petiolum brevem angustata, subtus sparse appresse pilosa, scapo robusto vaginato, vaginis viridibus obtusis, spica 4-6-pollicari cylindraceo-subclavata, bracteis ad 20 erecto-patentibus imbricatis late obovatis cucullatis obtusis v. retusis v. truncatis viridibus marginibus rubris incurvis, ovario brevi, perianthio externo tubuloso obtuse 3-lobo interiore dimidio breviore, interioris tubo 1½-pollicari gracili, segmentis albis dorsali oblongo obtuso fornicato, 2 lateralibus exterioribus longioribus dependentibus lineari-oblongis subacutis, 2 interioribus brevibus late oblongis obtusis, labello segmentis exterioribus breviore obovato obtuso venis pallide fusco-purpureis tessellatim reticulato, staminodiis linearibus, anthera lanceolata in rostrum acuminatum loculis æquilongum producta.

A very handsome species of a large and little known Indian genus, which can be satisfactorily illustrated by drawings only. It was discovered by our indefatigable correspondent, the Rev. C. Parish, in Moulmein, and roots were transmitted by him to Kew, which flowered for the first time upwards of ten years ago. The specimen here figured, also received from Mr. Parish, flowered in July, 1872, in the same month as the previous specimen had.

DESCR. *Roots* fascicled on creeping rhizomes. *Leafing stems* three feet high, as thick as a swan's quill, almost cylindric. *Leaves* with a glabrous terete sheath, short green obtuse auricles, and an elliptic-oblong or lanceolate-acute blade, four to six inches long, which is dark green above, paler beneath, and there sparingly clothed with appressed

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hairs; at the base they are contracted into a short petiole. *Scape* stout, three to four inches high, clothed with obtuse green obtusely keeled striated sheaths, the upper of which are acute and margined with red. *Spikes* four to six inches long, cylindric, rather broader upwards. *Bracts* closely imbricated, erecto-patent, three-quarters of an inch in diameter, cucullate, green with broad scarlet margins, retuse or truncate, or obtusely apiculate. *Flowers* one inch long, pale straw-coloured, the lip reticulated in squares with brown-purple veins. *Ovary* short. *Outer perianth* tubular, with three short rounded lobes half as long as the tube of the inner perianth, which is one and a half inches long. *Dorsal segment* hooded, arched, linear-oblong, subacute; outer lateral recurved, linear-oblong acute; inner lateral much shorter, truncate or rounded at the tip. *Lip* obovate, much shorter than the outer lateral segments. *Staminodes* linear, obtuse. *Anther* linear-oblong produced into an erect subulate beak as long as itself. *Stigma* of two small ciliate lobes.—*J. D. H.*

Fig. 1. Flowers; 2, anther; 3, stigma; 4, ovary and staminodes:—*all magnified.*

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Tab. 6020.

COTYLEDON MAMILLARIS.

Native of Namaqualand.

Nat. Ord. Crassulaceæ.

Genus Cotyledon, *Linn.*; (*Benth. and Hook. f. Gen. Pl.*, vol. ii. p. 659.)

Cotyledon *mamillaris*; glaberrima, caule crasso elongato parce ramoso ramis paucis pallide rufis apicibus decurvis laxe foliosis, foliis crassis laxis horizontalibus fusiformibus teretibus acutis glaucis basi in petiolum crassum brevem cylindraceum contractis lævibus, spica terminali elongata pendula simplici rachi cylindracea fusco-rubra, floribus ½-pollicaribus in fasciculos 3-floros sparsos dispositis horizontaliter divaricatis, bracteolis minutis, calyce parvo viridi hemispherico 5-dentato, corolla rubro-purpurea tubo elongato 5-gono angulis costatis, limbo parvo patenti-recurvo breviter 5-lobo, lobis saturate rubris undulatis caudato-acuminatis, squamulis minutis orbiculatis emarginatis, ovariis angustis.

Cotyledon mamillaris, *Linn. f. Suppl.*, p. 242; *Thunb. Flor. Cap.*, p. 397; *DC. Prodr.*, vol. iii. p. 398; *Harv. and Sond. Flor. Cap.*, vol. iii. p. 377.

C. filicaulis, *Eckl. and Zeyh. fid. Harv.*, l.c.

A native of the arid western districts of the Cape region, which contains so many of the most peculiar forms of South African vegetation, and whence the dry stoves of our grandfathers were supplied with the majority of those curious, interesting, and often singularly beautiful succulents that are now all but banished from cultivation. Of the genus *Cotyledon* there are three-and-twenty South African species alone described in Harvey's and Sonder's Flora, of which twelve were in 1811 cultivated at Kew, where there are now eighteen.

Descr. Quite glabrous. *Stem* one to two feet high (branched, creeping and rooting, according to Thunberg), ascending in our specimen, and sparingly branched, pale red-brown, as thick as the middle finger, fleshy, covered with the

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prominent scars of fallen leaves, tips decurved. *Leaves* scattered, two to two and a half inches long, horizontal or ascending, spindle-shaped, pointed, contracted at the base into a short, stout, swollen petiole, quite cylindric on a transverse section, succulent, terete, quite smooth, pale, very glaucous green, nerveless. *Spike* a foot long, terminal, slender, pendulous; peduncle and rachis dark chestnut-brown, cylindric. *Flowers* two-thirds of an inch long, in scattered fascicles of three, spreading horizontally from the rachis and divaricating from one another, quite sessile. *Calyx* green, hemispheric, with two minute bracts at the base, shortly 5-toothed. *Corolla-tube* dull red-brown, half an inch long, tubular, with 5-ribbed angles, contracted at the mouth; limb dull red-brown, a quarter of an inch in diameter, spreading and reflexed, 5-lobed; lobes shallow, undulate, with a long subulate point. *Scales* minute, orbicular, notched. *Ovaries* long, slender.—*J. D. H.*

Fig. 1, Whole plant:—*diminished;* 2, flower and bracts on portion of rachis; 3, flower removed; 4, ovaries and scales:—*all magnified.*

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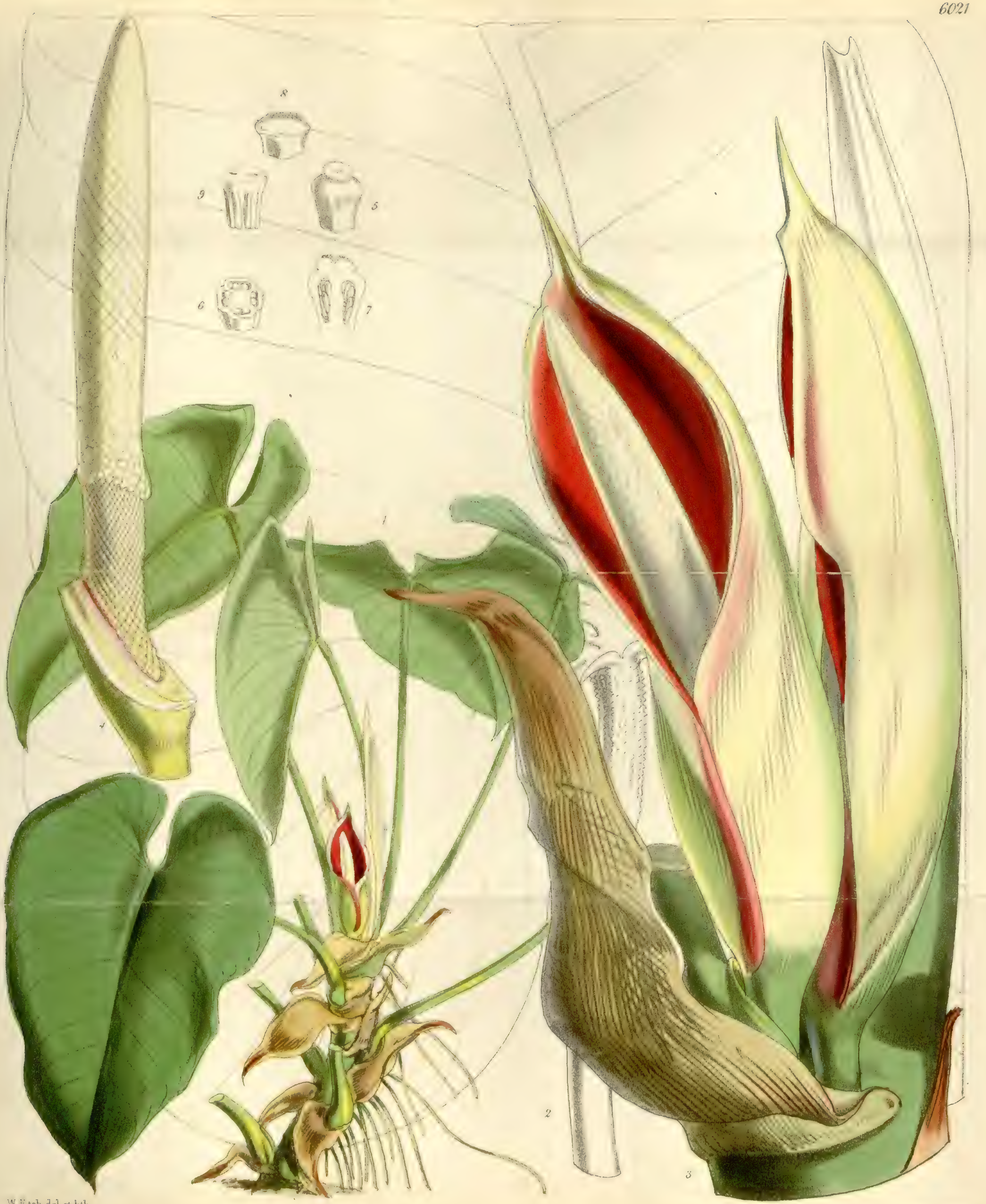

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TAB. 6021.

PHILODENDRON RUBENS.

Native of Venezuela and Trinidad.

Nat. Ord. AROIDEÆ.—Tribe PHILODENDREÆ.

Genus PHILODENDRON, *Schott;* (*Prodr. Syst. Aroid.*, p. 219.)

PHILODENDRON *rubens;* caudice robusto suberecto, vaginis stipulæformibus amplis ovato-lanceolatis pallide roseis membranaceis persistentibus, foliis ovato-cordatis hastatisve acuminatis coriaceis basi profunde 2-lobis lobis obtusis sinu lato v. angusto, venis in lobis ad 6, posticis breviter denudatis,petiolo gracili cylindraceo elongato superne undulato-asperatis, pedunculo brevi, spatha 6-8-pollicari extus albo-virescente intus amœne rubro-purpurascente, lamina tubo oblongo-ovoideo paulo ventricoso sesquilongiore erecta naviculari sensim in cuspidem conicum erectam angustata, spadice spatha breviore v. subæquante, parte fœminea constricta tertiam v. quartam partem occupante, ovariis 3-4-locularibus multi-ovulatis, stigmatibus majusculis.

PHILODENDRON rubens, *Schott*, *Synops. Aroid.*, p. 84; *Prodr. Aroid.*, p. 245.

I refer this magnificent Aroid to Schott's *P. rubens* with little doubt, though it differs from his description in the length of the spadix, which he describes as being much shorter than the spathe, whilst in the Kew plant it equals the spathe in length. In all other respects the plants accord so well that it is not likely they should specifically differ; and they further come from almost the same country; Schott's plant, which he describes from cultivated specimens, from Venezuela, and the Kew one from the neighbouring island of Trinidad, whence it was sent by Dr. Cruger, then (in 1866) Superintendent of the Botanic Gardens. As Dr. Cruger was in the habit of receiving plants from the adjacent coast of Venezuela, and *P. rubens* is nowhere described as a Trinidad plant, it is not impossible that the specimen sent to Kew may have come after all from the

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former country. Dr. Schott mentions that the spathe is sometimes double, which implies a tendency to an abnormal condition of the inflorescence in his specimens, which were cultivated in the Imperial Gardens of Schönbrunn.

Descr. *Stem* in the Kew plant two feet high, as thick as the wrist, inclined, cylindric, green, sending numerous roots into the water of the tank in which the pot stands (possibly the species is a climber). *Stipular sheaths* semi-amplexicaul, spreading, ovate-lanceolate, acuminate, rose-coloured, membranous, surrounding the leaf-bases. *Petiole* one and a half to two feet long, slender, swollen at the base, cylindric, dark green, with rough raised lines towards the top. *Leaf* fifteen to sixteen inches long by thirteen to fifteen broad, ovate-cordate, or hastate, shortly acuminate, deep green above, paler beneath, lobes rounded with about six nerves in each, the posterior marginal for a short distance from the petiole, basal sinus deep, open or contracted. *Peduncle* short, green, cylindric. *Spathe* six to eight inches long, erect, white externally, suffused with green down the back and with pale rose colour on the sides; inside vivid red-purple; tube ovoid-oblong, rather contracted; open part longer, boat-shaped, narrowed into a conical erect cusp nearly one inch long. *Spadix* nearly as long as the spathe, cylindric; pistilliferous part short, contracted; staminiferous and barren parts elongated, cylindric, obtuse, white. *Ovaries* densely crowded, obovoid, 3-4-celled; cells many-ovuled; stigma sessile, orbicular. *Anthers* few, fertile, broader upwards, truncate.—*J. D. H.*

Fig. 1, Whole plant *reduced;* 2, portion of leaf *of natural size;* 3, upper part of stem sheath and inflorescence; 4, spadix:—*both of natural size;* 5, ovary; 6, transverse, and 7, vertical section of ditto; 8, staminode; 9, stamen:—*all magnified.*

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TAB. 6022.

ARPOPHYLLUM SPICATUM.

Native of Mexico.

Nat. Ord. ORCHIDEÆ.—Tribe EPIDENDREÆ.

Genus ARPOPHYLLUM, *Llav. and Lex.*; (*Lindl. Gen. and Sp. Orchid.*, p. 151.)

ARPOPHYLLUM *spicatum;* caudice repente crassitie permæ olorinæ, vaginis inferioribus granulatis, folio pedali complicato arcuato ligulato subacuto carinato, pedunculo brevi suberecto, spica cylindracea densiflora 3-5-pollicari, floribus purpureo-roseis $\frac{1}{3}$ poll. diam., petalis sepalis subæqualibus margine postico eroso, labello 3-lobo concavo margine eroso, lobo medio parvo orbiculari.

ARPOPHYLLUM spicatum, *Llav. and Lex. Nov. Veg. Descript.*, vol. ii. p. 19; *Lindl. Gen. and Sp. Orchid.*, 151; *Bot. Reg.*, vol. xxv. *Misc.* p. 16; *Ann. Nat. Hist.* 1840, vol. iv. p. 384; *Benth. Pl. Hartweg.*, p. 72; *Walp. Ann.* vol. vi. p. 448.

Apparently a very rare plant, since, though described upwards of forty years ago by Llave and Lexarca, and introduced into this country in 1839 by Hartweg, it has hitherto never been figured or accurately described. Indeed, so imperfect is the original character given by the author just mentioned, that I depend less upon it for the identification of the plant here figured, than upon Lindley's having referred the plant collected by Hartweg (with the dried specimens of which this accords) to Llave and Lexarca's *Arpophyllum spicatum.* It is a native of Mexico, and was first found by its describers at Sultepec, and near Aricubaro (localities which I do not find in any map or gazetteer), and later by Hartweg, at the Hacienda del Carmen, wherever that may be. There are other specimens of apparently the same plant in the Hookerian Herbarium, collected by Galeotti, in the Oak and Pine region of Oaxaia, at 7000 to 8500 feet elevation; and by Jurgensen on the Sierra San Pedro Nolasco, Talea, &c. These differ greatly in

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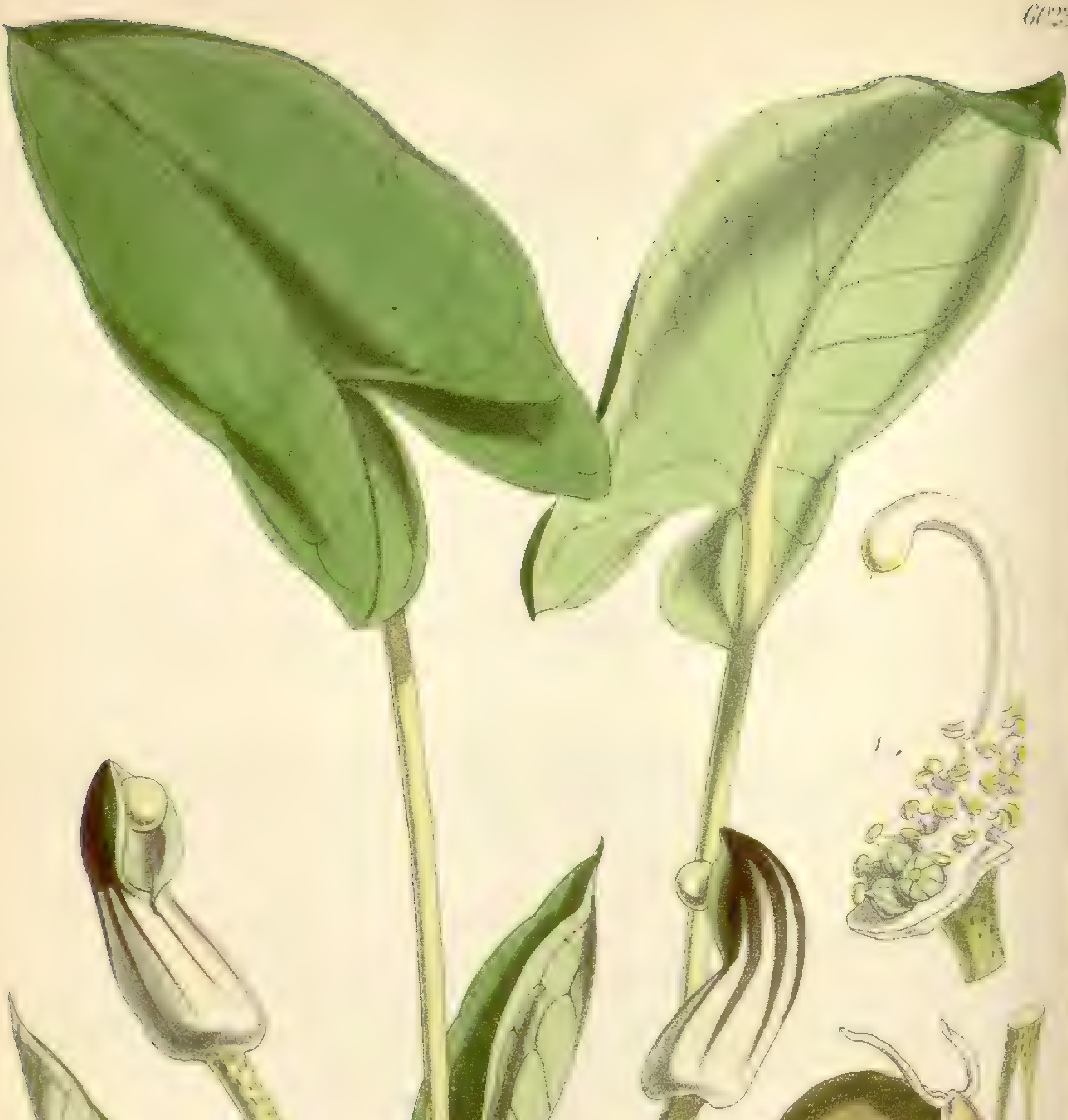
the length and breadth of the sheath of the peduncle, being in all very much larger than in the Kew plant, as also in the amount of glandular pubescence on the ovaries and rachis; all agree in stature, habit, and the complicate arcuate leaf, flowers, &c. The lower sheaths of the stem are remarkably granulate when dry in most specimens, but not in all. The specimen here figured flowered in Kew, in the Catleya House, in April, 1872. The spike resembles in colour and form that of *Gymnadenia conopsea*.

Descr. *Rhizome* cylindric, creeping, as thick as a swan's quill, hard, green, sending out stout roots, and ascending strong sheathed flowering branches, two to six inches long, bearing each a leaf and raceme of flowers; sheaths somewhat compressed, appressed, or slightly ventricose, brown, rigidly coriaceous, obtuse, older ones granulate on the surface. *Leaf* about one foot long, falcate, complicate, keeled, subacute, very coriaceous, smooth, bright green. *Peduncle* three to four inches long, stout, green, erect, with a basal sheath, which is very variable in size. *Spike* three to five inches long, dense. *Flowers* rose-purple, one-third of an inch in diameter. *Ovary* slender, sharply angled, more or less glandular-pubescent. *Sepals* equal, broadly oblong-ovate, obtuse. *Petals* similar or larger, the upper or posterior margin erose. *Lip* rather longer than the petals, very shortly clawed; concave; base gibbous; lateral lobes short, terminal, orbicular, cup-shaped, margins of lobes erose. *Column* obscurely toothed at the tip.—*J. D. H.*

Fig. 1, Flower; 2, column and lip; 3, column; 4, lip:—*all magnified.*

6023



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TAB. 6023.

ARISARUM VULGARE.

Native of the Mediterranean Region.

Nat. Ord. AROIDEÆ.—Tribe ARISAREÆ.

Genus ARISARUM, *Targ. Tozzi; (Schott, Prodr. Syst. Aroid.*, p. 20.)

ARISARUM *vulgare;* foliis solitariis oblongo-hastatis obtusis apiculatis, pedunculo petiolo breviore v. longiore concolore v. purpureo-maculato, spatha fornicata brevi curva basi tumida oblique truncata lamina brevi cucullata obtusa v. apiculata purpurea, spadicis appendice curva apice globosa-clavata exserta.

ARISARUM vulgare, *Targ. Tozzi, Ann. Mus. Florent.*, vol. ii. p. 67; *Kunth. Enum. Plant.*, vol. iii. p. 15; *Parlatore Flor. Italian.*, vol. ii. p. 235; *Reichb. Ic. Flor. Germ.*, vol. vii. t. 7; *Durieu Bot. Explor. Alger.*, t. lxiv. f. 10—12.

ARUM Arisarum, *Linn. Sp. Pl.* 1370; *Gren. and Godr. Flor. France*, vol. iii. p. 331; *Moggridge Contrib. Flor. Mentone*, t. 47; *Jacq. Hort. Schœnb.*, vol. ii. t. 192; *Sibthorp Flor. Græc.*, t. 948.

A very common Mediterranean plant, inhabiting earthy banks etc., from Palestine and Egypt to Portugal and Marocco, and reappearing in the Canary Islands (*A. subexsertum*, Webb), and in the Azores (*A. azoricum*, Schott). Schott has indeed made species out of no less than twelve forms from so many countries within the above-named limits, but the characters he gives are utterly unsubstantial, and the dried specimens upon which he has founded them are often absolutely undistinguishable. The genus in fact consists of but two species, the present, which has a very wide range, and *A. proboscideum*, Savi, of the Apennines, which is distinguished by the spathe being produced into a long twisted tail.

The specimens here figured are from Marocco, where the plant abounds, and where my attention was directed to its root by Mr. Hunot of Saffi, as affording a food to the natives during their frequent seasons of famine; when they are dug up, washed, and cooked, notwithstanding their poisonous properties. The Arab name is Ironne. A similar use is made of the roots of the great *Arisæmas* in the Himalaya (see *A. curvatum*, Tab. nost. 5931). During my visit to Marocco this plant was long past flower, and I am indebted to my friend Dr. Leared for the specimen here figured, which he brought in a flowering state in November last. The spathes are small and much paler than in the Mediterranean forms; but this probably is to be accounted for by the confinement of the plant on board the steamer during its homeward voyage; for in dried specimens from Tangier, they are as large and highly coloured as in European ones.

Descr. *Root* a tuber of various shapes, sometimes as large as a walnut, but usually smaller, producing a solitary leaf and scape, which are surrounded at the base by a membranous, acute sheath one to three inches long. *Petiole* three to eight inches long, pale green, sometimes speckled or blotched with purple, terete, succulent; blade usually three inches long, but sometimes twice as large or much smaller, very variable in breadth, oblong-hastate or almost deltoid, obtuse, apiculate, bright green above, paler beneath; lobes spreading or pointing downwards, obtuse. *Scape* shorter or longer than the petiole and like it spotted or not. *Spathe* one and a half to two and and a half inches long; tube inflated, obliquely truncate; limb short, arched, subacute, about as long as the tube, dark-purple, the colour extending in streaks along the tube. *Spadix* conical at the base, and broadly adnate to the spathe, gradually narrowed into a curved appendix, the globose or club-shaped tip of which is protruded. *Stamens* few, scattered round the conical base of the spadix; anthers reniform. *Ovaries* few, seated on the spathe in front of the spadix, 1-celled; ovules many basal; style very short, stigma capitate.—*J. D. H.*

Fig. 1, column; 2 and 3, stamens; 4, ovary; 5, vertical section of ditto:—*all magnified.*

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TAB. 6024.

NIDULARIUM SPECTABILE. = NEOREGELIA SPECTABILIS fide Lond Catal.

Native of Brazil.

Nat. Ord. BROMELIACEÆ.—Tribe ANANASSEÆ.

Genus NIDULARIUM, *Lemaire Jardin Fleuriste*, vol. iv., *Misc.*, p. 60, t. 441.

NIDULARIUM *spectabile;* acaule, cæspitosum, foliis rosulatis recurvis e basi late dilatata late loriformibus (ad 2-poll. latis) planiusculis minute distanter spinuloso-dentatis apice late sanguinea rotundatis ungue rigido terminatis supra viridibus subtus glaucescentibus albo transverse fasciatis, floribus in fasciculum multiflorum terminalem sessilem dense congestis, bracteis lanceolatis acuminatis purpureis calycem æquantibus calycis lobis oblongis longe cuspidatis sanguineis, petalis infra medium in tubum connatis dein ellipticis acuminatis recurvis violaceis, antheris sessilibus.

NIDULARIUM spectabile, *T. Moore in Gard. Chron.*, 1873, p. 8.

The genus *Nidularium* was established by Lemaire in 1854, and includes various species of the old genera *Bromelia*, *Billbergia*, &c., together with others, of which a dozen are enumerated by Morren, in his valuable "Catalogue des Broméliacées cultivées au Jardin Botanique de l'Université de Liege" (1873.) Amongst them *N. Meyendorffii*, Regel, (*Billbergia olens*, Tab. nost. 5502), is the only one quoted as being hitherto figured in the "Botanical Magazine." The genus is probably a large one, and we have dried specimens of the foliage of several Brazilian species, besides the considerable number that are in cultivation. *N. spectabile* was imported by Mr. Bull from the interior of Brazil, and flowered in his establishment in December, 1872. It is a very striking plant, allied to *N. Meyendorffii*, Lemaire (Ill. Hort. t. 245), but very distinct; and may at once be recognised from any species hitherto cultivated in England, by the singular bright blood-red ends

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of the leaves, which form a clearly defined and singular contrast both to the bright green of the upper surface and the glaucous dull green of the lower surface of the leaf.

DESCR. Tufted, stemless. *Leaves* twelve to fourteen inches long by one and a half to two inches broad, inner shorter, broadly strap-shaped from a very broad sheathing base, slightly concave, points rounded with a beak-like cusp, margin with small remote spiny teeth, upper surface dark green except the tip, which presents a bright blood-red patch half an inch deep on both surfaces; under surface covered with alternate dull green and dirty white lepidote transverse bands; towards the base of the leaf the green bands are purplish. *Flowers* numerous in a crowded terminal flat-topped fascicle, one and three quarters to two inches in diameter, sunk amongst the uppermost leaves, spinulose from the prominent bracts, which are lanceolate concave, rose-purple above the middle, and terminate in acicular points. *Ovary* ovoid, white. *Calyx-limb* of three elliptic blood-red segments, terminating in erect acicular points, which equal the corolla-tube. *Corolla-tube* pale, obtusely 3-angled; limb three quarters of an inch diameter, of three spreading and recurved ovate acuminate violet-blue segments. *Anthers* linear-oblong, sessile in the mouth of the tube.—*J. D. H.*

Fig. 1, Whole plant *reduced*; 2, flower and bracts; 3, portion of tube and a segment of corolla with anthers; 4, ovary :—*all magnified.*

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TAB. 6025.

ARECA PUMILA.

Native of the Malayan Archipelago.

Nat. Ord. PALMEÆ.—Tribe ARECINEÆ.

Genus ARECA, *Linn.; (Endl. Gen. Pl.*, vol. i. p. 247.)

ARECA *pumila;* caule humili arundinaceo basi dilatato, cicatricibus prominentibus ad 2 poll. remotis, foliis ad 1-2-pedalibus, vagina cylindracea paulo turgida viridi, rachi glabra, petiolo brevi pinnis ad 5-jugis e basi lata remotis late falcato-oblongis acuminatis sub 5-nerviis subtus minutissime asperulis, summis confluentibus præmorso-dentatis, spadice brevi arrecto breviter pedunculato glabro pinnatim ramoso, bracteis angustis subulato-lanceolatis, floribus masculis ultra medium ramulorum flexuosorum 2-seriatim imbricatis secundis, fœmineis ad basin ramulorum solitariis cum masculis 2 imperfectis stipatis, sepalis in fl. ♂ minutis petalis subacutis multoties minoribus, fl. ♀ sepalis amplis petalis paulo brevioribus, staminibus 3, fructu elongato ellipsoideo umbonato.

ARCEA pumila, *Blume, Rumphia*, vol. ii. p. 71, t. 99 *et* 102, *non Martius.*

ARECA triandra, *Roxb. var.* pumila *Miquel Fl. Ned. Ind.*, vol. iii. p. 11; *Flore des Jardins*, vol. ii. t. 10 (1859) *excl. synon. Martii, Miquelii et Griffithii.*

ARECA triandra, *Roxb.* var. *β.* pumila, *Mart. Hist. Palm.*, vol. iii. p. 311.

The present elegant Palm has been the subject of much confusion. It was originally discovered by Blume, who appears to have communicated its discovery to Von Martius under the name of *A. pumila.* Martius, however, through some mistake, described and figured Blume's *A. Nenga*, a totally distinct plant, belonging to another section of the genus, for Blume's *A. pumila.* Griffith ("Calcutta Journal of Nat. Hist.," vol. v. 456) retains Martius' name of *A. pumila* for *A. Nenga*, in which he is followed by Miquel (" Fl. Ind. Bat., vol. iii. p. 14); and, lastly, the anonymous author of the " Flore des Jardins " (1859), quotes all the above names as belonging to one plant, and accompanies them by a wretched reduced copy of the true *A. pumila* taken from Blume's work. For-

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tunately Blume's excellent plates and descriptions leave no doubt as to the name of the plant here figured.

With regard to Roxburgh's *Areca triandra*, to which Miquel has referred this as a variety, I was very familiar with it in Bengal; it is a much larger plant, attaining 30 feet in height, is always stoloniferous, and has usually many more and narrower pinnules.

A. pumila is a native of Java, and was received at the Royal Gardens from Holland many years ago; it flowered frequently, usually in the spring months, up till some six years ago, when it died after transplantation.

Descr. *Stem* three feet high, erect, slender, without stolons, solitary, swollen at the very base, green; rings very prominent, two inches apart. *Leaves* few, about two feet long; sheath cylindric, slightly inflated, green, petiole short and rather smooth; blade ovate-oblong, cut into about five pairs of leaflets, which are rather distant, oblong from a very broad base, falcate, acuminate, about 5-nerved, minutely asperulous beneath. *Spathe* suberect, much shorter than the leaf-sheath, flabellately sparingly branched, stout, shortly peduncled, green, quite glabrous. *Flowers* unilateral; ♂ minute, 2-seriate, imbricate on slender white flexuous branchlets, secund. *Sepals* minute, triangular. *Petals* elliptic-ovate, subacute. *Stamens* three: fl. ♀ sessile at the base of the small branches, with a minute imperfect male flower on each side. *Sepals* green, broad, subacute, keeled, rather shorter than the petals. *Drupe* two inches long, ellipsoid-oblong, red-brown, umbonate.—*J. D. H.*

Fig. 1. *Reduced* view of whole plant; 2, top of stem and spadix, *of the natural size*; 3, male flower; 4, female flower with minute male and base of male branch:—*all magnified;* 5, fruit, *of natural size*, from Blume.

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TAB. 6026.

ZAMIOCULCAS BOIVINII.

Native of Eastern Tropical Africa.

Nat. Ord. AROIDEÆ.—Tribe ORONTIEÆ.

Genus ZAMIOCULCAS, *Schott*; (*Dcne. in Bull. Soc. Bot. France*, vol. xvii. p. 321).

ZAMIOCULCAS *Boivinii*; foliis 3-ternatim sectis, foliolis ovato-lanceolatis acuminatis sessilibus v. breviter petiolatis, petiolo tereti medio nodoso-incrassato, pedunculo gracili, spathæ lamina lanceolata acuminata intus pallide straminea, extus luride viridi lineolis fuscis creberrime striolata.

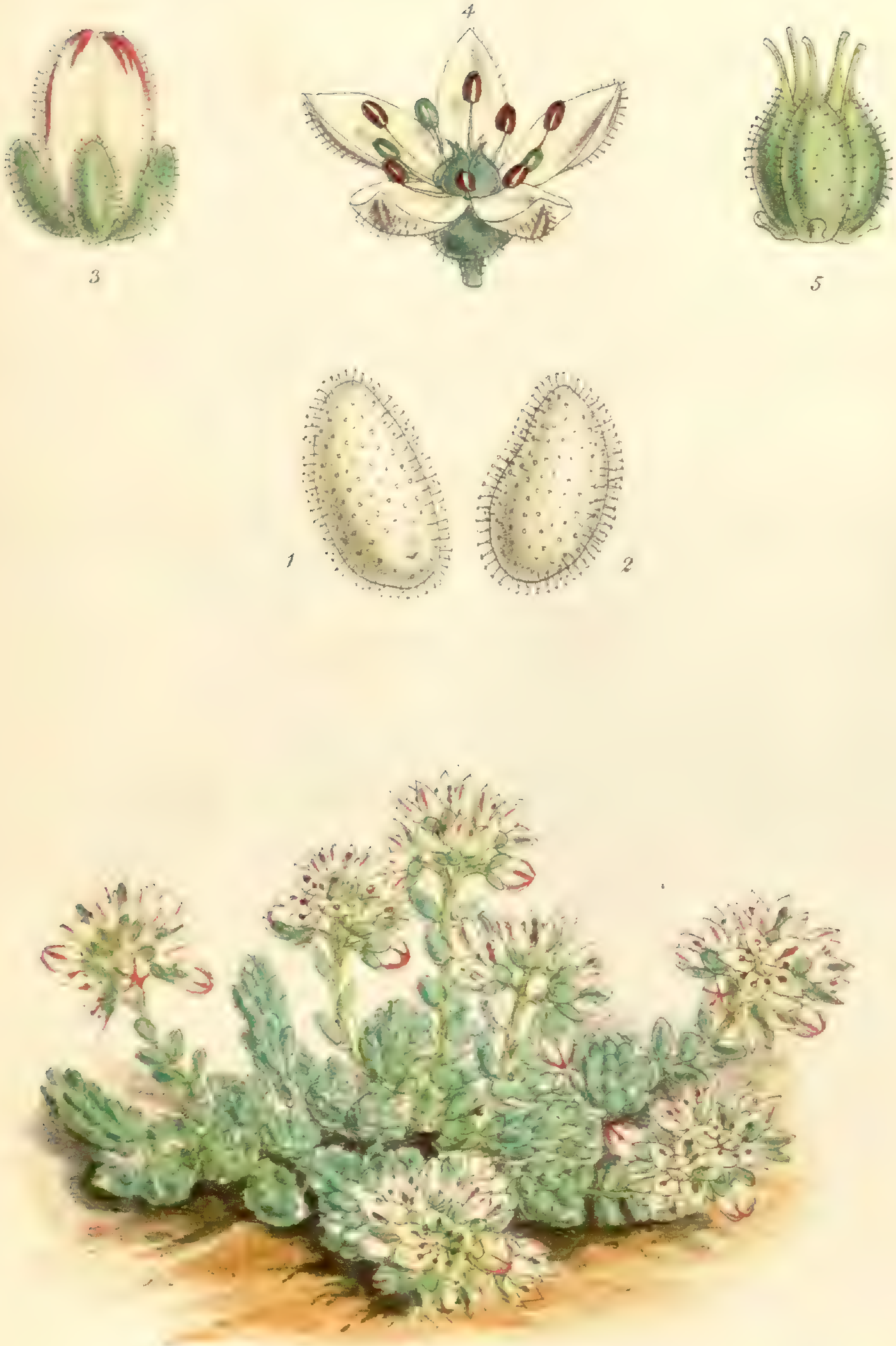
ZAMIOCULCAS Boivinii, *Dcne. l. c.* p. 322.

When last year I figured in this Magazine the curious *Z. Loddigesii* (Tab. 5985), and called attention to the fact of a species with bipinnate leaves having been described by my friend M. Decaisne, I little expected that living specimens of this were then actually on their way to Kew from its indefatigable correspondent Dr. Kirk, H. B. M. Vice-Consul at Zanzibar, who procured them from the coast opposite to that island. Further, on referring to the Herbarium, I find under the genus *Anchomanes* dried specimens of this same *Zamioculcas*, collected by Dr. Kirk himself, when accompanying Dr. Livingstone on his second expedition, in 1861, on the banks of the Shire river, opposite to the rapids of Zedzani. As a species this differs widely in habit from *Z. Loddigesii*, bearing apparently only a single leaf, whose petiole is not so remarkably clavate at the base, though similarly swollen into a node at the middle; the peduncle is very much longer and more slender, the spathe much larger, longer, and more lanceolate, and the spadix of a very different form; the filaments also are different, the anthers open by pores, the ovary has a distinct style, and lastly, instead of being all over pure bright green, the peduncles, petioles, and spathe externally of *Z. Boivinii* are of a lurid green, fasciated with pencilled streaks of greenish or purplish brown, giving a singularly lurid and snake-like look to the plant. Considering all these points, it is perhaps doubtful whether *Z. Boivinii* should not be regarded as the type of a distinct genus or sub-genus, to which the name of *Gonatopus*, in allusion to the knee-like swelling on the petiole, might be applied.

DESCR. *Rhizome* short, dilated. *Leaf* in our specimen solitary, radical, enclosed at the base along with the peduncle in a few short membranous acute sheaths, two to three feet long, erect; blade triangular-ovate, triternately pinnate; petiole as thick as the little finger, with one swollen oblong node in the middle, and as well as the slender rachis, partial petioles, and peduncles of the spathes, of a dull green, crossed by irregular bands of brownish striæ; pinnæ opposite, sessile or shortly petioled, ovate-lanceolate, acuminate, membranous, faintly nerved. *Peduncles* two in our specimen, one on each side of the petiole, shorter and much more slender than it is, cylindric, terete. *Spathe* six inches long, ovate-lanceolate from a short sheathing base that embraces the female flowers, long-acuminate; blade revolute, dirty yellow-green inside, lurid yellow-green outside, with six to eight obscure dark nerves and innumerable dark striæ. *Spadix* equalling the spathe; female portion one inch long, subglobose; male portion cylindric, four inches long by one-third of an inch broad, yellow, terete, densely clothed with yellow hexagonal flowers, whose truncate perianth-segments give it an even surface. *Perianth-segments* four, prismatic, thick, truncate, closely embracing the organs of fructification. *Male flower*:—*stamens* four, surrounding a rudimentary pistil, filaments very short, broad; anthers included, incumbent, didymous, cells opening by large terminal pores. *Female flower*:—*ovary* obovoid, 2-celled, contracted into a columnar style with a capitate stigma; ovules ascending from the septum, solitary in each cell, micropyle inferior.—*J. D. H.*

Fig. 1, *Reduced* figure of plant; 2, pinnules of the *natural size*:—3, male flower; 4, stamens and rudimentary ovary; 5, stamen; 6, female flower; 7, pistil; 8, vertical section of ditto:—*all magnified.*

6027.



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TAB. 6027.

SEDUM DASYPHYLLUM, VAR. GLANDULIFERUM.

Native of Spain and Marocco.

Nat. Ord. CRASSULACEÆ.

Genus SEDUM, *L.*; (*Benth. and Hook f. Gen. Pl.*, vol. i. p. 659).

SEDUM *dasyphyllum* var. *glanduliferum;* humile, cæspitosum, glaucum, glanduloso-pubescens, caulibus brevibus basi ramosis tortuosis, foliis surculorum dense congestis ovoideis v. ellipsoideis teretibus obtusis, caulinis sparsis consimilibus v. longioribus et subspathulatis, cymis paucifloris, sepalis oblongis obtusis petalisque albis roseo-tinctis extus glanduloso-pubescentibus, ovariis turgidis hispidulis in stylos breves suberectos repente angustatis, glandulis hypogynis parvis.

SEDUM dasyphyllum, var. β glanduliferum, *Moris Flor. Sardoa*, vol. ii. p. 125.

SEDUM glanduliferum, *Gussone Flor. Sic. Prodr.*, vol. i. p. 519; *Tenore Flor. Neap. Syll.*, p. 226, et *Flor. Nap.*, vol. iv. p. 251, t. 232, f. 2; *Boiss. Voy. Espagn.*, p. 226.

SEDUM Corsicum, *Duby Bot. Gall.*, vol. i. p. 292; *DC. Prodr.*, vol. iii. p. 406; *Tenore Flor. Nap.*, vol. iv. p. 252.

A very free-growing variety of *Sedum dasyphyllum*, well adapted on this account and from its glaucous habit for rock-work cultivation. It is a native of dry rocks and banks in Spain, extending thence to Sicily, Corsica, and Calabria, ascending in the former country to 7000 feet elevation on the Sierra Nevada, and also occurring in North Africa from the Atlas to the Blidah province of Algeria and throughout the mountainous regions of Marocco. It is most nearly allied to *S. dasyphyllum*, as a variety of which it is no doubt correctly regarded by Moris in his Flora Sardoa, who observes that the amount of glandular pubescence varies greatly, and that the petals are obtuse, acute, or shortly acuminate in both the original *S. dasyphyllum* and its variety.

APRIL 1ST, 1873.

It flowered both in the Royal Gardens and at Benthall Hall from plants brought from the greater Atlas by Mr. Maw and myself in 1871.

Descr. Tufted, perennial, glaucous, glandular-pubescent. *Stems* prostrate and ascending, one to three inches long, the flowerless shoots short, densely clothed with imbricating leaves, and forming club-shaped masses. *Leaves* a quarter to one-third of an inch long, succulent, sessile, ovoid or ellipsoid, obtuse, terete, hardly flattened on the upper surface; those on the flower-bearing stems remote, often larger and more obovate or spathulate. *Cymes* 5–8-flowered; flowers very shortly pedicelled, one-third of an inch in diameter, white with rose-coloured tips and dorsal keel of the petals. *Sepals* green, oblong, obtuse, glandular, half as long as the corolla. *Petals* elliptic-ovate, acute obtuse or shortly acuminate, glandular-pubescent at the back. *Anthers* brown. *Glands* short, small, clavate. *Ovaries* turgid, hispid, abruptly contracted into short somewhat recurved styles.—*J. D. H.*

Figs. 1 and 2, Leaves; 3, bud; 4, flower expanded; 5, ovaries and hypogynous glands:—*all magnified.*

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TAB. 6028.

FREYCINETIA BANKSII.

Native of New Zealand.

Nat. Ord. PANDANEÆ.

Genus FREYCINETIA, *Gaudichaud*; (*Endl. Gen. Pl.*, p. 242).

FREYCINETIA *Banksii*; alte scandens, caule gracili ramoso, ramis foliosis, foliis confertis 2–3-pedalibus e basi vaginante anguste lineari-subulatis 1-poll. latis marginibus carinaque minute spinuloso-serrulatis, bracteis e basi lata ovata concava carnosa alba v. pallide lilacina subulato-lanceolatis erectis, spadicibus simplicibus erectis breviter crasse pedunculatis, masculis 3-5 poll. longis $\frac{1}{3}$ poll. diametro elongato conicis obtusis, staminibus 8-12 circa ovarium rudimentarium oblongum crenulatum dispositis, filamentis elongatis, spadice femineo oblongo-cylindraceo obtuso, ovariis longitudinaliter elongatis, stylo crasso disco angusto crenulato (crenulis stigmatibus respondentibus) coronato, ovulis numerosissimis supra totam superficiem internam cavitatis ovarii confertis oblique pendulis, staminodiis parvis remotis spathulatis stylo adnatis.

FREYCINETIA Banksii, *Cunningham in Hook. Comp. Bot. Mag.*, vol. ii. p. 377; *Hook. f. Flor. Nov. Zel.*, vol. i. p. 237, t. 54, 55; *Handbook of the New Zealand Flora*, p. 275.

A well-known New Zealand plant, the Kie Kie of the natives (according to Mr. Mantell), whose fleshy bracts, called Tawhara, are greedily eaten by them, and also made by the colonists into a very luscious jelly tasting like strawberries. In reference to this, the late Dr. Sinclair informed me that this food was so highly prized by the natives, that in some parts of the island, the forests where the plant abounds is tabooed till the bracts are ready for eating, when the members of the tribe to whom the forest belongs, at a given signal rush into the woods and satiate themselves with the luscious food. It is common in the forests of the Northern Island, as far south as the East Cape, and it is said to occur in the Middle Island also, but I have seen no specimens from thence. It festoons

APRIL 1ST, 1873.

the trees, which it climbs by means of its clasping roots, presenting a very beautiful appearance. The leaves are used for basket-making. Two plants of it are grown in the Palm-house at Kew, and have attained one, the female, the height of five feet, the other of about three; both flowered for the first time this year, the male first, and so long before the female showed any sign of flowering, that the pollen of the former was all shed before the opportunity offered of fertilizing the latter. The bracts of the male were pure white, those of the female a pale lilac. The plants were sent to the Royal Gardens in a Ward's case by Dr. Hector, F.R.S., the Director of the Geological Survey of New Zealand.

Descr. A lofty climber, ascending the trees for one hundred feet and more. *Stem* rooting, slender, about one inch in diameter. *Leaves* two to three feet long by one inch broad, elongate linear-subulate, spreading and recurved, minutely spinulose-serrulate, keeled, concave, tip trigonous, green with a paler line halfway between the midrib and margin. *Inflorescence* diœcious, in the centre of the extremity of the branches, surrounded by bracts three to six inches long, that have an ovate very fleshy, white or pale lilac base and subulate tip. *Spadices* crowded, erect, shortly peduncled; *males* three to five inches long, by one-third of an inch in diameter, gradually narrowed to the obtuse tip, bright yellow. Flowers crowded, each consisting of eight to twelve stamens surrounding a vertically elongated crenulate green disk; filaments slender, anthers small. *Female spadix* shorter than the male, elongate oblong, cylindric, tip rounded. *Ovaries* densely crowded, consisting of a vertically elongated laterally compressed hard green style bearing eight to ten spathulate staminodes on its sides, and crowned by a crenulate stigmatiferous disk, placed on a wedge-shaped cell, the inner surface of which is densely crowded with anatropous ovules. *Fruiting* spadix green, five inches long.—*J. D. H.*

Fig. 1, *Reduced* view of branch, leaves, and inflorescence, about one-eighth natural size; 2, male spadix and bract; 3, portion of spadix and male flower; 4, ripe female spadix; 5, its style and staminodes, of the *natural size*; 6, vertical section of ovary, with ovules:—*magnified*.

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TAB. 6029.

ODONTOGLOSSUM TRIPUDIANS.

Native of Peru.

Nat. Ord. ORCHIDEÆ.—Tribe VANDEÆ.

Genus ODONTOGLOSSUM, *H. B. and K.*; (*Lindl. Fol. Orchid.*, *Odontoglossum*).

ODONTOGLOSSUM *tripudians*; pseudobulbis ovoideo-oblongis compressis, foliis 7–10-pollicaribus lineari-lanceolatis acuminatis, racemo simplici plurifloro, bracteis subulato-lanceolatis pedicello dimidio brevioribus, floribus 2-poll. diametro, sepalis elliptico-oblongis acuminatis intus castaneis basi et apice aureis, petalis sepalis subsimilibus aureis plagis latis lobatis castaneis transversis notatis, labello albo roseo maculato brevissime unguiculato ambitu oblongo-quadrato, medio constricto, lobo basilari margine obscure crenato, terminali paullo latiore rotundato apiculato marginibus erosis, disco basi carinis ad 10 flabellatim dispositis, carinis 4 interioribus longius productis spinescentibus, columnæ superne alatæ alis laceris incurvis.

ODONTOGLOSSUM tripudians, *Reichb. f. in Bonplandia*, 11 Jahrgang (1854) p. 100; *Walp. Ann.*, vol. vi. p. 830.

The genus *Odontoglossum* is now so largely increased in number of species and in the beauty of these, that it may fairly be said to rival *Dendrobium* in the estimation of Horticulturists and especially of Orchid growers. The present beautiful species was discovered by Warsewicz in about 1849, and described by H. Reichenbach in the work quoted above, where it is compared with *O. rigidum*, Lindl., a species differing in the long claw of the lip and in other respects. It was flowered by Messrs. Veitch in January of the present year, and for brilliancy of colour and size of flower is certainly a magnificent species. It had been placed in the section *Xanthoglossum*, from which, however, the white colour of the lip removes it. The contrast between the muddy yellow-green of the back of the flower, and the clear, bright hues of the front is very remarkable, and rendered all the more so by the habit of the plant, which (in the specimen here figured) turns all the flowers on one side of the raceme to the observer and the other away; considering that the raceme is erect, this suggests either a possible rotation of the rachis so as to expose the flowers by turns to the light, or an arrangement by which one side secures the forenoon and the other the afternoon exposure to the light.

DESCR. *Pseudobulbs* ovoid-oblong, about three inches long, compressed, green. *Leaves* seven to ten inches long, linear-lanceolate, acuminate, keeled, deep green above, paler beneath. *Raceme* erect, longer than the leaves, 8–10-flowered, nearly naked, peduncle and rachis stiff, green; bracts small, triangular-lanceolate, shorter than the pedicels. *Flowers* two inches in diameter; perianth spreading, dull yellow-green on the back, except at the tip. *Sepals* elliptic-oblong, acuminate, rich maroon brown, with golden tips and bases. *Petals* equalling the sepals, golden yellow, with very broad transverse maroon brown lobed blotches. *Lip* oblong in outline, shortly clawed, white with rose-coloured blotches; lateral lobes rounded, obscurely crenate; terminal suborbicular, apiculate, erose; disk with about ten keels radiating from the claw, of which the four inner are produced on to the surface of the basal lobe, and end each in a spinous process. *Column* winged at the tip, wings incurved, deeply 3–6-toothed.—*J. D. H.*

Fig. 1, Column and lip:—*magnified.*

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TAB. 6030.

CHAMÆDOREA TEPEJILOTE.

Native of Eastern Mexico.

Nat. Ord. PALMEÆ.—Tribe ARECINEÆ.

Genus CHAMÆDOREA, *Willd.; (Endl. Gen. Plant.* p. 245).

CHAMÆDEREA *Tepejilote;* caule solitario gracili erecto non radicante, internodiis 1–2-pollicaribus, foliis 3–4-pedalibus pinnatis, pinnis multijugis ad 1½ pedalibus anguste lanceolatis acuminatis leviter falcatis sub 7-nerviis, spathis numerosis 6–10-pollicaribus laxis viridibus rostrato-acuminatis ad medium clausis, spadice ♂ pedunculato curvo nutante, pedunculo subcylindraceo, ramis perplurimis pendulis 5-7-pollicaribus teretibus, floribus 6-seriatim dispositis, perianthii segmentis exterioribus obsoletis interioribus transverse oblongis, filamentis basi liberis, antheris obliquis, spadice ♀ suberecto ramis 6-10 divaricatis cylindraceis quam ♂ brevioribus et strictioribus, floribus semi-immersis, perianthio maris.

CHAMÆDOREA Tepejilote, *Liebm. in Mart Hist. Palm.*, vol. iii. p. 308.

STEPHANOSTACHYS Tepejilote, *Oersted Palmæ Centroamericanæ*, p. 28, ex *Natur. Hist. Foren. Vidensk. Meddelels.* 1858, *an* S. Wendlandiana, *Oersted, l. c.?*

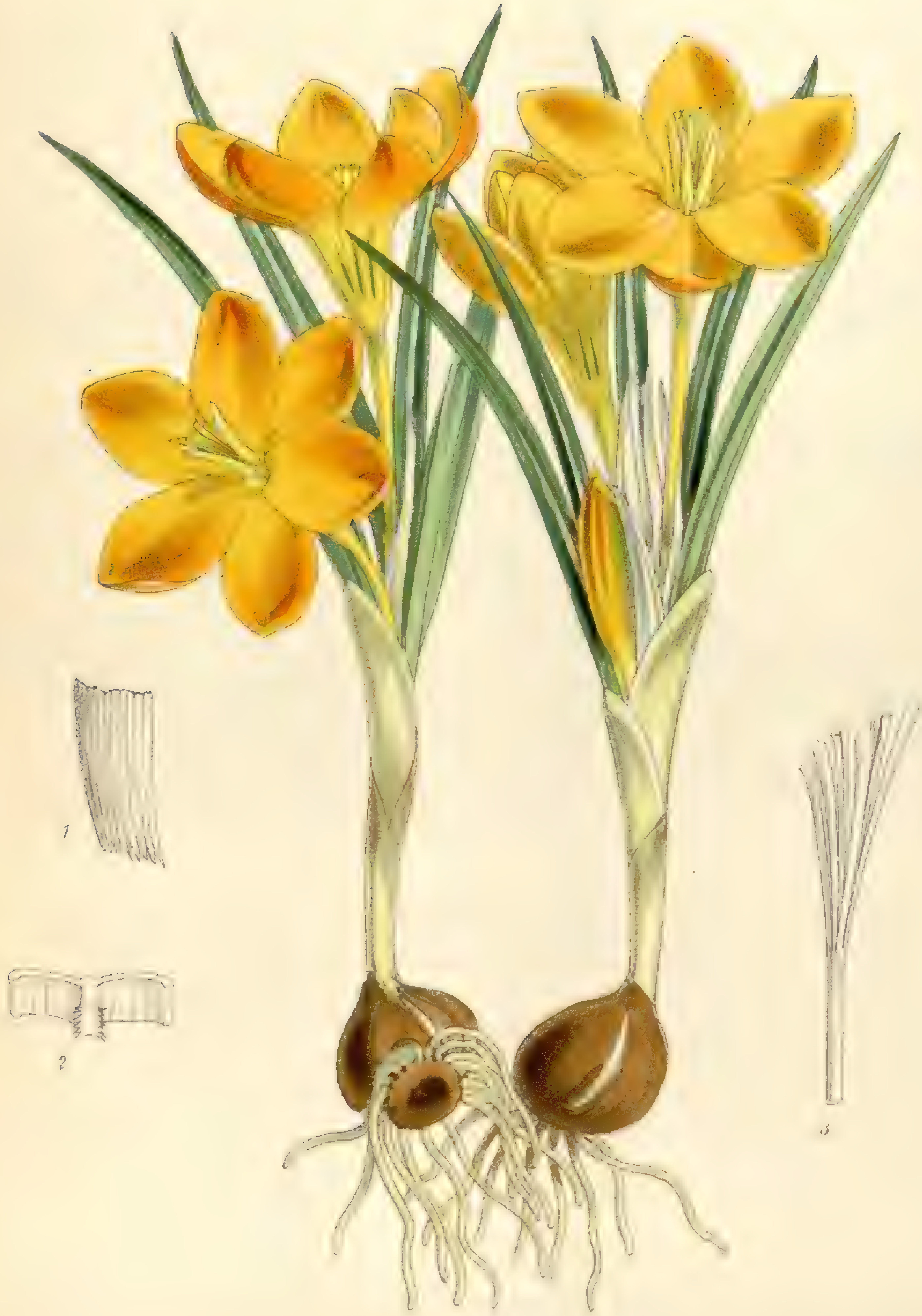
A very graceful palm, introduced from Mexico by Wendland of Herrenhausen, Hanover, to whom the Royal Gardens are indebted for the specimen here figured, which flowered for the first time in 1860, and has done so repeatedly since. It is probably the plant described by Oersted as *C.* (*Stephanostachys*) *Wendlandiana,* and which was cultivated in the Herrenhausen stoves under the name of *C. Tepejilote,* Liebm., and which Oersted distinguishes from that species by the more numerous branches of the spadix, longer outer perianth-segments and more obtuse inner ones; but as I am quite unable to discover any developed outer perianth, and the plant otherwise agrees perfectly with Liebman's original Herbarium specimen of *C. Tepejilote,* I am obliged to adopt his name, doubting greatly the specific distinctness of the two.

APRIL 1ST, 1873.

Descr. *Stem* erect, ten feet high, as thick as a stout cane; joints numerous, green, swollen upwards, the very lowest only rooting. *Leaves* three to four feet long, spreading, pinnate, pinnules in many (twelve to twenty) pairs, one to one and a half feet long by one and a half to two inches broad, slightly curved, narrow lanceolate, acuminate, 7-nerved, green. *Male spadix* with a long erect sheathed peduncle, which curves and branches beyond the sheaths; sheaths about seven, rather lax, very rigid and coriaceous, green, six to ten inches long, the last longest ending in a long beak, all acuminate, and closed for about halfway up; branches of spadix twenty to thirty, pendulous, six to ten inches long, a quarter of an inch in diameter, quite cylindric and terete, densely clothed to the base with golden yellow flowers, apiculate. *Outer perianth* obsolete; inner of three transversely oblong segments. *Stamens* sessile in the base of the perianth, filaments clavate, free at the base; anthers short, oblique. *Female spadix* erect, with six to ten shorter strict spreading branches.—*J. D. H.*

Fig. 1, *Reduced* view of the whole plant; 2, portion of male spadix *of the natural size*; 3, male flowers on the axis; 4, male flower removed; 5, stamen;—*all magnified*.

6031



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Tab. 6031.

CROCUS Olivieri.

Native of Greece.

Nat. Ord. Irideæ.—Tribe Ixieæ.

Genus Crocus, *Tourn.*; (*Klatt in Linnæa*, vol. xxxiv. p. 647).

Crocus *Olivieri;* cormis mediocribus globosis, tunicis membranaceis brunneis basin versus fibrosis fibris parallelis, foliis 4–5 flores superantibus ⅛ poll. diam., marginibus lævibus non recurvis, costa subtus prominula ciliolata, subtus glaucis, vaginis latis ex albo virescentibus, spatha 2-valvi, corolla læte aurantiaca, tubo 3-4 pollicari, limbi lobis obtusis extus basi 3-fasciatis, fauce glabra concolore, antheris pallide citrinis filamentis concoloribus longioribus, stigmatibus aurantiacis 2–3-fidis lobis elongatis.

Crocus Olivieri, *J. Gay in Ferussac Bull. Sc. Nat.*, vol. xv. p. 219 (Jan. 1832); *Kærnicke in Flora* 1856, p. 470.

C. Aucheri, *Boiss. Diagn. Pl. Or.*, vol. xiii. p. 13 (1867); *Walp. Ann.*, vol. vi. p. 52.

Originally detected in the Island of Scio in the Levant, by the French oriental traveller and botanist Olivier, from whose collections it was described by M. Gay of Paris, in whose notes to the original specimen (now preserved in the Kew Herbarium), he states that he does not see how it differs from a plant collected by the same traveller between Aleppo and Mosul. Subsequently it was collected at Guenive in Asia Minor by Aucher Eloi, and described from thence as a new species by Boissier (*C. Aucheri*). More recently still it has been gathered in the Abies region of Attica in Greece, at elevations of 1–3500ft. by Professor Orphanides; and by Heldreich, amongst the melting snows of Mount Parmes, flowering in the month of March. As a species it is most nearly allied to *C. mœsiacus*, Gawler, Tab. nost. 1111, (*C. luteus*, Lamk., *C. lagenæflorus*, Salisb., *C. aureus*, Smith, Tab.

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nost. 2986, *C. vernus*, Curt., Tab. nost. 45, non Smith; all according to J. Gay's notes), which differs conspicuously in the entire stigmata, much larger size, paler colour and coarser habit. I have not quoted Klatt's monograph (Linnæa, v. 34), because, as Mr. Baker informs me, he is in error with regard to all the synonymy of *C. sulfureus*, Ker, under which he includes *C. Olivieri*.

Crocus Olivieri flowered in January in the Royal Gardens, and I received it at the same time from my friend Giles Munby, Esq., under the better known name of *C. Aucheri*.

DESCR. *Corms* about the size of a hazel-nut, globose, covered with a thin membranous shining coat that becomes torn into parallel (not reticulate) fibres at the base. *Sheaths* several, broad, greenish-white, membranous. *Leaves* overtopping the flowers, about one-eighth of an inch broad, acute, green, margins not recurved, quite smooth, glaucous beneath with a very prominent ciliolate keel. *Spathes* 2-valved, nearly equaling or exceeding the corolla-tube. *Corolla* bright golden orange, faintly smelling, tube three to four inches long; limb nearly two inches in diameter; throat glabrous, concolorous; segments obtuse, rather broad, each with three dark streaks outside near the base which extend a little way down the tube. *Anthers* pale lemon coloured. *Stigmas* orange-yellow, each deeply 2–3-fid.—*J. D. H.*

Fig. 1, Portion of the tunic of the corm; 2, transverse section of leaf; 3, stigmas:—*all magnified.*

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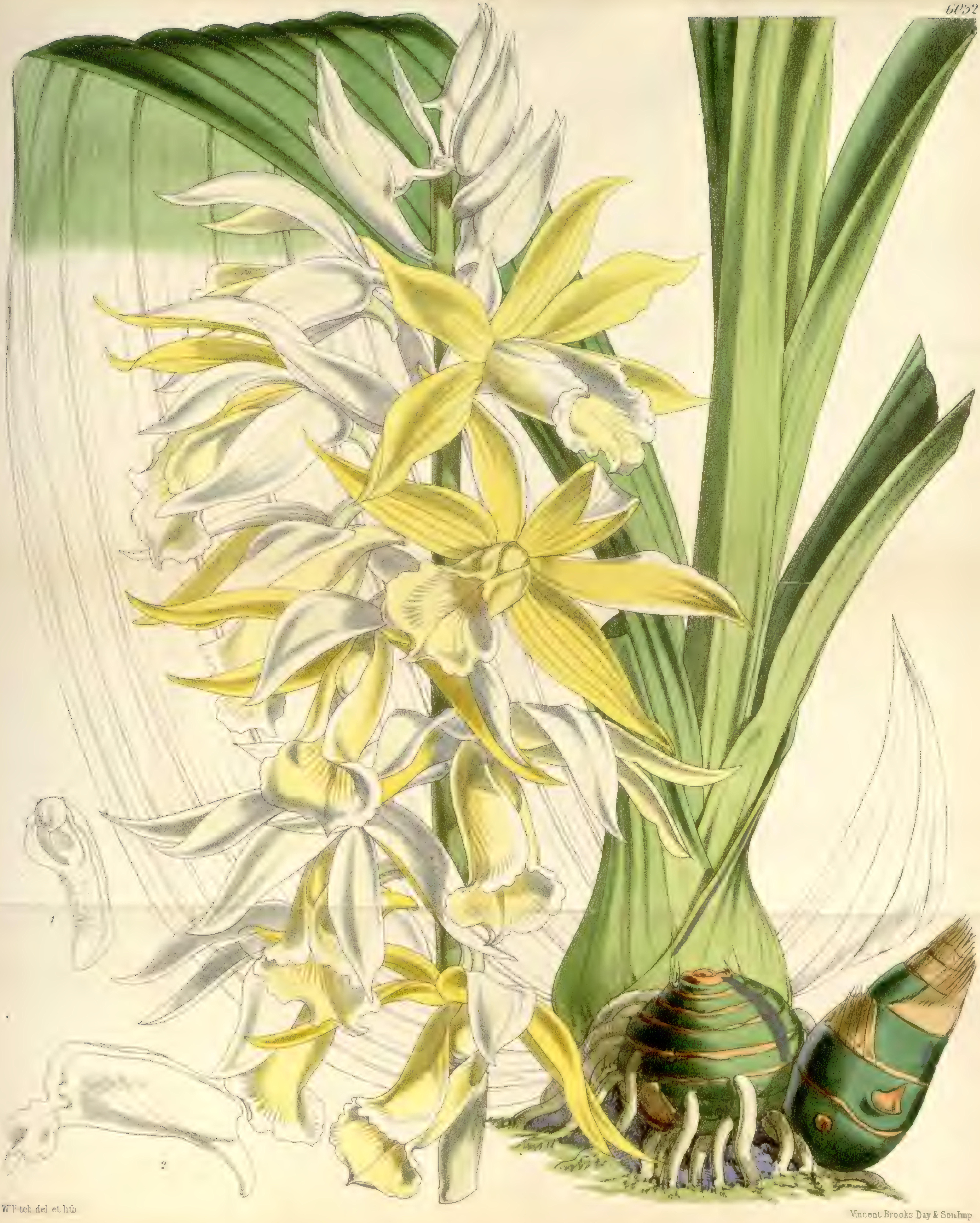

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TAB. 6032.

PHAJUS BLUMEI VAR. BERNAYSII

Native of Queensland.

Nat. Ord. ORCHIDEÆ.—Tribe, EPIDENDREÆ.

Genus PHAJUS, *Lour.*; (*Lindl. Gen. et Sp. Orchid.*, p. 126).

PHAJUS *Blumei*; foliis non maculatis, sepalis petalisque subæqualibus lanceolatis acuminatis intus coloratis, labello æquilongo convoluto apice trilobo, lobis lateralibus brevibus obtusis, intermedio crispato orbiculari apiculato, disco obscure 3-lamellato parce piloso, calcare brevi obtuso v. 2-fido conico ovario quater breviore, columna clavata antice et dorso ima cum anthera puberula.

PHAJUS Blumei, *Lindl. Gen. et Sp. Orchid.*, 127; *Vriese Illust. Orchid. Ind. Or. Ned. cum Ic.*; *Blume Coll. Orchid. Archip. Ind. et Jap.* p. 2, t. 1, et 5 D.

LIMODORUM Incarvillei, *Blume Bijd.*, p. 374.

Var. Bernaysii, *Reichb. f. mss.* sepalis petalisque extus albis intus sulphureis, columna subtriandra. P. Bernaysii, *Rowl. mss.*; *Reichb. f. in Gard. Chron.*, March, 1873, p. 361.

This appears to differ from *P. Blumei* in colour only, and I hence follow the opinion kindly given me by Prof. Reichenbach, in considering it to be a form of that plant. Whether or no both are not further mere varieties of *P. grandifolius*, Lour., is questionable;* the latter plant is stated to be found in Australia, from which country Mueller has described four species—viz., *P. australis*, Fragm. Phyt. Aust. vol. i. p. 42, from Lady Elliot's Islands; *P. leucophæus*, l.c. vol. iv. p. 163, from Rockingham Bay; *P. grandifolius*,

---

* Dr. Reichenbach obligingly informs me that he has thus distinguished three of the species here below mentioned. 1. *P. grandifolius*; sepals and petals acute, tip of lip notched, spur short thick. 2. *P. Blumei*; sepals and petals acuminate, tip of lip acute, spur short thick. 3. *P. Wallichii*; spur longer, slender. He adds that they might be regarded as subspecies.

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from various warm parts of the East Coast; and a *P. Carroni*. Of these he says, *P. australis* and *leucophæus* have to be further compared with *P. grandifolius*, Lour.; implying that the two former are not satisfactorily established. Judging from the published figures of *P. grandifolius* (Tab. nost. 1924, *Bletia Tankervilliæ*), and of *P. bicolor*, Lindl. (Tab. nost. 4078), I should not be surprised if these, together with the Australian species and *P. Blumei*, proved to be all varieties of one plant, differing in the length of the spur; and of which *P. Wallichii*, Wall. (Pl. As. Rar. t. 158) is a form, with a narrower mid-lobe to the lip. In this case the species would have a wide distribution, from Ceylon and China through the Malay to the Pacific Islands.

P. Blumei, var. *Bernaysii*, whether a species or variety, differs from all the above in the sulphur-coloured inner surface of the petals, sepals, and lip; its tending to a triandrous column, which it shares with *P. Blumei*, is rather an abnormal condition of that organ than a specific character. The spur is shorter than in the figure of *grandifolius* quoted above. *P. veratrifolius*, Lindl., of Silhet, is stated to be yellow flowered, and Blume describes a *P. flavus* from Java, so the colour is not peculiar to *P. Bernaysii*.

This beautiful plant was communicated from the stoves of Messrs. Veitch, with whom it flowered early in the present year. It was named *Bernaysii* by Dr. Rowland, in compliment to A. Bernays, Esq., one of the most active promoters of the Acclimatization Society of its native country, Queensland, and a valued correspondent of Kew.

Descr. *Pseudo-bulb* as large as a potato. *Leaves* one and a half to two feet long, similar to those of *P. grandifolius*. *Flowering-stem* and spike nearly three feet high, the latter many-flowered; flowers crowded, four inches in diameter, nearly white externally, sulphur-yellow within. *Sepals* and *petals* lanceolate, acuminate. *Lip* about as long as the petals; convolute portion sulphur yellow; lateral lobes rounded, very short-waved, terminal white, nearly orbicular, apiculate, margin slightly recurved, waved, yellow on the disk, white towards the margin; spur one quarter the length of the lip, conical, curved. *Column* pubescent on the front and back, as is the anther.—*J. D. H.*

Fig. 1, Column; 2, lip:—*both magnified.*

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TAB. 6033.

XIPHION HISTRIO.

Native of Mount Lebanon.

Nat. Ord. IRIDACEÆ.—Tribe IRIDEÆ.

Genus XIPHION, *Tourn.*; (*Tab. nost.* 5890).

XIPHION *Histrio*; vaginis membranaceis ima basi demum reticulatis, foliis pedalibus basi vaginis 3–5-pollicaribus elongatis albis tectis anguste subulatis tetraquetris flores longe superantibus, spathis membranaceis angustis elongatis apice obtusis, perianthii tubo gracillimo 3-pollicari, segmentis exterioribus obovato-spathulatis ultra medium horizontaliter patentibus ceruleis, margines versus plagis saturate violaceis maculatis disco aureo purpureo-venoso, interioribus erectis exterioribus paulo brevioribus longe unguiculatis anguste oblongo-lanceolatis apice obtusis integris azureis, stigmatis segmentis apice remotis erectis dimidiato-oblongis subacutis margine exteriore obtuse crenato.

IRIS Histrio, *Reichenb. f. in. Bot. Zeit.* 1872, p. 488.

IRIS Libani, *Reuter mss.*

I received plants of this beautiful species in a fresh state and in full flower, from Mr. Berberey of La Ferrière, near Geneva, early in March last, with his own and M. Boissier's request that it should be figured in the Botanical Magazine. Mr. Berberey further has had the goodness to inform me that it is the *Iris Libani* of his late lamented friend, M. Reuter's Mss., and was sent about ten years ago to M. Boissier by M. Gaillardot, who found it on Mount Lebanon and on Mount Gerizim, in Palestine; as also that its nearest ally is *X. reticulatum*, M. Bieb. (Tab. nost. 5577, sub. *Iris*), from which it differs not only in structural characters, but in its paler colour, in flowering fully six weeks earlier, and in being inodorous. A comparison with *X. reticulatum* shows that this is further abundantly different, in its much smaller size, copious finely-reticulated sheaths of the corm, much fewer shorter broader stout leaves often not exceeding the scape, broader spathes and differently shaped inner perianth-segments, which are notched at the tip. It is a very beautiful plant, but whether hardy in this country remains to be proved; as a pot plant it cannot fail to be highly prized.

Descr. Tufted, slender, rather flaccid. *Corm* ovoid, the size of a wren's egg, clothed with pale membranous sheaths, which are slightly reticulated in age. *Sheaths* of the scape and leaves (inner), three to five inches long, white, very membranous, obtuse or subacute, margins entire. *Leaves* a foot long, one-sixth of an inch in diameter, linear-subulate, acute, acutely 4-angled, with a deep angular groove upon each face, dark green. *Scape* very slender, not half the length of the leaves, clothed with sheaths, of which the upper are acute. *Spathes* very membranous, narrow, acuminate, white, nearly equalling the perianth-tube. *Flower* three inches in diameter. *Perianth-tube* three to four inches long, very slender, blue above; outer segments obovate-spathulate, spreading but not reflexed above the middle, claw narrow, blue with dark purple rib and veins externally; blade deep blue round the margins, fading to pale purple towards the faintly golden disk, which is streaked with purple veins, blotched with dark blue on the uppermost third; inner segments shorter, paler, and more grey blue, erect, lanceolate-spathulate, margins quite entire. *Stigmatic lobes* half an inch long, spreading, rather distant above, dimidiate-ovate, acute, outer margins crenate, of the same colour as the inner perianth-segments. *Ovary* very narrow, ellipsoid.—*J. D. H.*

Fig. 1, Section of leaf; 2, upper part of style and stigma:—*both magnified.*

6034

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TAB. 6034.

ACRANTHUS ARACHNITIS.

Native of Madagascar.

Nat. Ord. ORCHIDEÆ.—Tribe VANDEÆ.

Genus ACRANTHUS, *Lindl.*; (*Gen. et Sp. Orchid.*, p. 243).

ACRANTHUS *arachnitis*; foliis loratis non undulatis, pedunculo capillari, vaginis internodiis brevioribus appressis, flore 2-poll. diam. toto virescente, perianthii segmentis e basi lata abrupte caudato-attenuatis subacutis, sepalo dorsali basi late ovata, lateralibus basi latioribus quam longis margine inferiore gibboso-producto apicibus deflexis, petalis sepalo dorsali consimilibus, labello recurvo e basi oblongo subquadrata in apicem triangularem caudato-acuminatum contracto, lateribus obscure unidentatis, calcare brevi sacciformi obtuso.

ACRANTHES arachnitis, *Lindl. Bot. Reg.* sub. t. 817.

DENDROBIUM arachnitis, *Petit-Thouars, Hist. Orchid. Iles austral. d'Afrique*, t. 88.

The curious genus *Acranthus* was founded by Lindley upon *Dendrobium arachnitis* of Petit-Thouars, and another species, brought by Forbes from Madagascar, and which he rightly distinguished as *A. grandiflora* (see Bot Reg. l.c.), together with the magnificent *Angræcum sesquipedale*, which I need hardly add is not a congener. In his "Genera et Species Orchidearum," however, he modifies this opinion, and refers Thouars' plant with a doubt to his *A. grandiflora*, saying, "I formerly thought Du Petit-Thouars' *D. arachnitis* distinct from this, but a better acquaintance with the habits of tropical Orchideæ has now induced me to cancel that supposed species."—There is, however, no question but that Lindley's first opinion was correct, *A. grandiflora* differing not only in its greater size, but in the shorter, broader, undulate, more membranous leaves, the more numerous lax sheaths of the scape, that exceed the internodes, and the paler yellower green colour of the flower. *A. arachnitis* has been long cultivated at Kew from specimens sent from the Botanic Garden of the Mauritius, procured no doubt from Madagascar. I find flowers of it in Lindley's herbarium, obtained from Kew in 1852, and well described in Mss. I should add that he changed the name (possibly through inadvertence) from *Acranthes* in the Botanical Register to *Acranthus* in the "Genera et Species Orchidearum," which latter spelling is retained in his Vegetable Kingdom, and hence adopted here. The plant here figured was sent to Kew by Mr. Horne of the Mauritius Garden.

Descr. *Leaves* equitant, five to eight inches long by three-quarters to one inch broad, ovate, recurved, keeled, not undulate, deeply very unequally obtusely 2-lobed at the tip, sheathing portion short, deep green above, paler beneath. *Peduncle* six inches long, very slender, 1–2-flowered at the apex, with four to six slender brown appressed sheaths which are shorter than the internodes. *Flowers* nearly two inches in diameter across the tips of the sepals, wholly yellow green, the tips of the perianth-segments, which are all caudate acuminate, of a deeper yellow green. *Dorsal* sepal with a broadly ovate base; lateral much larger, deflexed, the very broad base produced into a gibbous lobe on the lower side. *Petals* similar to the dorsal sepal. *Lip* equalling the lateral sepals, recurved, base quadrate-oblong, abruptly terminating in a triangular caudate acuminate lobe, with a notch at its base on each side, disk slightly pubescent, basal angles somewhat recurved; spur a very short inflated oblong obtuse sac.—*J. D. H.*

Fig. 1, Side view of base of column, spur, and lip; 2, front view of column and spur; 3, lip:—*all magnified.*

6035

[illegible]

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TAB. 6035.

HYPOXIS LONGIFOLIA.

Native of Algoa Bay.

Nat. Ord. HYPOXIDEÆ.

Genus HYPOXIS, *Linn.*; (*Endl. Gen. Plant.*, p. 174).

HYPOXIS *longifolia*; perennis, foliis basi membranaceis sublonge vaginantibus longissimis gramineis 2-pedalibus vix $\frac{1}{5}$-poll. latis flaccidis acuminatis, supra concavis, subtus semicylindricis ecarinatis, marginibus et dorso parcissime pilosis obscure 7–9-nerviis, scapo radicali foliis multoties breviore ancipiti inferne glaberrimo superne una cum ovario et perianthio piiis elongatis appressis molliter villosis, umbella 2–4-flore, bracteis setaceis pedicellis brevioribus, ovario turbinato, perianthii aurei $1\frac{1}{2}$-poll. diam. segmentis subvalvatis, exterioribus lanceolatis acutis extus viridibus, interioribus paulo latioribus carina tantum pubescente, staminibus epigynis, filamentis antheris ovato-cordatis æquilongis, stylo brevi, stigmate conico obtuso, capsula apice tantum dehiscente, seminibus globosis atris.

HYPOXIS longifolia, *Baker mss.*

A very distinct species of *Hypoxis*, brought by Mr. Cooper from Algoa Bay when collecting for W. Wilson Saunders, Esq., remarkable for the great length of its narrow, flaccid, grass-like leaves. A very similar and probably identical plant is contained in the Hookerian Herbarium, gathered by Burke at the Fat river—a stream I do not find in the maps; it differs a little in the longer and broader membranous leaf-sheaths and longer filiform bracts, but seems to be otherwise identical. Mr. Baker, who carefully examined and named *H. longifolia*, regards it as being most nearly allied to the N. American *H. erecta* (Tab. nost. 701), which is a much smaller plant, with shorter, broader leaves, differently shaped anther, and a subcapitate 3-lobed stigma. Our plant flowered in the Royal Gardens, August, 1871.

DESCR. *Stems* tufted, covered up the neck with a few withered remains of old leaves. *Leaves* numerous, the outer two feet long, spreading on the ground; the inner sheath suberect; sheath broad, membranous, two to four inches long; blade grass-like, very slender, scarcely a quarter of an inch in diameter, flaccid, bright green, with a few scattered hairs on the margins and keel, back semicylindric, face concave, nerves five to seven, obscure. *Scapes* several, much shorter than the leaves, glabrous below the upper part as well as the flowers densely villous with long silky hairs. *Umbel* 4—5-flowered, bracts very slender, filiform, subulate, shorter than the flowering pedicels, which are one half to three quarters of an inch long. *Ovary* turbinate. *Perianth* one and a half inches in diameter, golden yellow within, outer segments lanceolate, subacute, green and villous at the back; inner rather broader, with a dorsal green villous midrib. *Stamens* epigynous, very small, filaments short, subulate, as long as the ovate-cordate small short anthers. *Style* shortly columnar from a conical base, stigma conic obtuse undivided. *Capsule* opening at the top only. *Seeds* several in each cell, globose, testa black, punctulate.—*J. D. H.*

Fig. 1, Ovary, style and stigma; 2, transverse section of ditto; 3, seed:—*all magnified.*

6036

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TAB. 6036.

CROCUS SIEBERI.

Native of Greece.

Nat. Ord. IRIDEÆ.—Tribe IXIEÆ.

Genus CROCUS, *Tourn.; (Klatt in Linnæa*, vol. xxxiv. p. 647).

CROCUS *Sieberi;* cormi tunicis validis fortiter reticulatis, vaginis subacutis, foliis 4–7-latiusculis costa nervata canaliculis enervibus, involucro 0, perianthii tubo pallido, fauce aureo, segmentis violaceis lilacinis v. albis purpureo striatis elliptico-oblongis obtusis, filamentis brevibus flavis infra faucem insertis, antheris aureis filamento duplo longioribus, stigmatibus croceis integris.

CROCUS Sieberi, *Gay in Bull. Feruss.*, vol. xxxv. p. 220 (1831).

C. nivalis, *Bory et Chaub. Voyage de la Morée* (1832); *Herbert in Bot. Reg.* 1847, t. 4, f. 1, *et Hist. Sp. Crocus in Journ. Hort. Soc.*, vol. ii. p. 274 (1847); *Klatt in Linnæa*, vol. xxxiv. p. 682.

C. sublimis, *Herbert in Bot. Reg.* 1845, *Miscell.*, p. 73.

C. vernus, *Sibth. & Sm. Prodr. Flor. Græc.*, vol. i. p. 24 *excl. synon.*

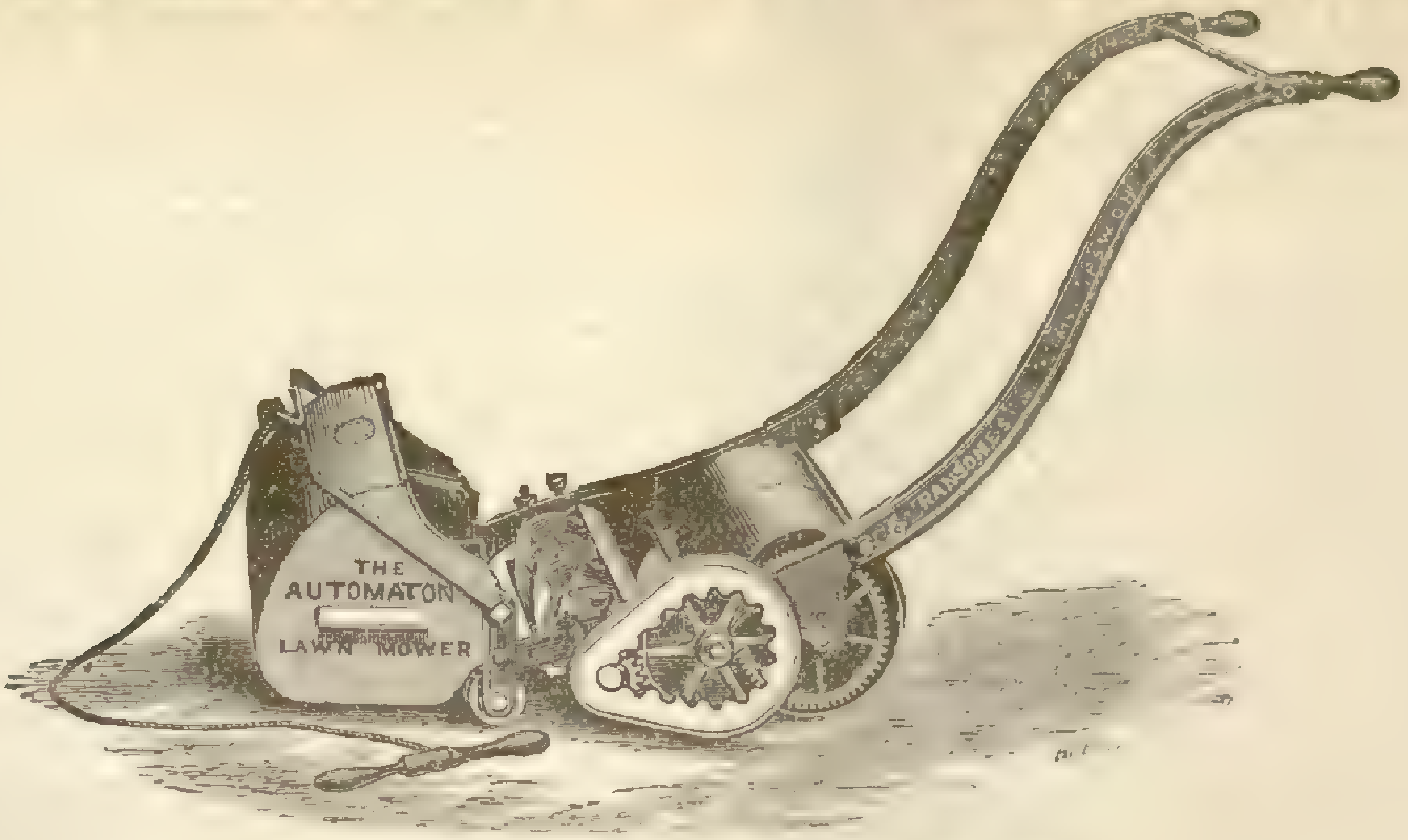
A common Greek plant, and, in fact, the commonest Crocus of that country, found at an elevation between 1000 and 7000 feet, according to Professor Orphanides; also occurring in Bosnia, Crete, and Herzegovina, flowering frequently near the melting snow. It is a very early blooming species, and I received flowering specimens from Giles Mumby, Esq., Messrs. Ware of Tottenham, and the Royal Gardens, all about the middle of January and beginning of April. The very closely allied *C. veluchensis* of Herbert, which inhabits the Morea and Transylvania, differs chiefly in wanting the orange colour on the throat.

Klatt is no doubt in error in describing the scape as involucrate. It is not so easy to understand Herbert's reason for considering Gay's *Sieberi* as different from Bory's *nivalis*, if we suppose, what seems improbable, that these authors made use of the same terms to designate the various series of sheaths of the lower leaves and scape, which terms, as used by Herbert, are anything but intelligible. Herbert further alters *Sieberi* of Gay into *Sieberianus*, in accordance with his own views of specific nomenclature. Bory figures the three stigmas as of unequal length and slightly lobed, which is not the case in our specimens.

Descr. *Corm* the size of a hazel-nut, clothed with a stout longitudinally reticulate brown tunic (not well represented in the plate). *Leaves* four to seven, rather broad, produced with the flowers, shorter than the flowering scape, nerves very faint, midrib stout. *Perianth* without an involucre (involucrate according to Klatt); tube slender, pale; throat golden yellow; limb two to two and a half inches in diameter, segments elliptic-oblong, obtuse, pale or dark violet-blue, or white with pale violet-blue streaks. *Filaments* shorter than the linear golden anthers. *Stigmas* deep orange yellow, quite entire, exceeding the stamens. " *Capsule* naked, purple towards the top. *Seeds* small, subangled, glabrous, pale brown." *Herbert.—J. D. H.*

Fig. 1, Reticulated fibres of the tunic; 2 and 3, stigmas:—*both magnified.*

"AUTOMATON LAWN MOWER"



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RANSOMES, SIMS & HEAD are the oldest manufacturers of Lawn Mowers, their experience in these Machines extending over more than thirty years. The Automaton Lawn Mowers were brought out in 1867 from entirely new designs and patterns, embodying the latest improvements suggested by long and varied experience. From the universal approbation they have met with, R. S. & H. can recommend them with the greatest confidence.

Machine-made Gearing is adopted for communicating motion to the knives, being the best and simplest plan far superior to chains or other methods; as whilst almost noiseless, it is not liable to get out of order.

The Cutting Barrels are fitted with the best knives, of rolled steel and iron combined. The steel forms the cutting edge and the iron at the back wears away faster than the steel edge, thus maintaining a sharp cutting edge much longer than when the knives are entirely of steel, or steel both front and back. The pivots and bearings are of hardened steel, so that these important parts will last several seasons without requiring repair.

No Ribs in the Grass are left by these Machines, but a beautiful flat uniform surface is obtained, giving the lawn a carpet-like appearance, very far superior to any work which can be done with a scythe and at a much less cost.

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If desired the Cut Grass can be Left on the Lawn by simply removing the box in front of the Machine, thus combining the advantages of both the systems of lawn mowing before the public.

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[OVER.

REPORTS FROM THIRTY-FIVE COUNTIES

ON THE

"AUTOMATON LAWN MOWER."

1.—BEDFORDSHIRE.—From Mr. W. R. Southam, Dunstable.—Your Automaton Lawn Mower gives great satisfaction, and does its work remarkably well.

2.—BERKSHIRE—From Mr. J. Holden, Crown Nursery, Reading.—The Automaton Lawn Mower gives satisfaction to myself and the gentleman who has bought it. I will thank you to send me another 10-inch Machine immediately.

3.—BUCKS.—From Mr. W. Grimsdell, High Wycombe.—Mr. Grimsdell is very much pleased with the 16-in. Automaton Lawn Mower.

4.—CAMBRIDGESHIRE.—From the Rev. Edwd J. Routh, M.A., Newnham—I have great pleasure in stating that the Automaton Lawn Mower I purchased from you a year ago gives me complete satisfaction in every way. It works well and smoothly, and does not get out of order.

CAMBRIDGESHIRE.—John Symonds, Esq., Dotterel Hall, Balsham, has used one of Ransomes, Sims & Head's Automaton Lawn Mowers for 4 years, and has much pleasure in saying that he can recommend it with confidence.

CAMBRIDGESHIRE.—From G. F. Josling, Esq., Great Thurlow Hall, nr. Newmarket.—Having used Messrs. Ransomes' Automaton Lawn Mower two seasons, I have pleasure in stating that I am perfectly satisfied with it in every way, and consider it a very useful machine, being both strong and light in draught.

CAMBRIDGESHIRE.—From Edwd. P. Frost, Esq., West Wratting Hall.—I have pleasure in stating that the Automaton Lawn Mower with which you supplied me, works very satisfactorily.

5.—CARNARVONSHIRE.—From Lt.-Col. Williams, Bangor.—Lieut.-Col. Williams begs to inform Messrs. R. S. & H. that the Automaton Lawn Mower arrived safely, and has been in daily use this week, working to his entire satisfaction.

6.—CHESHIRE.—From Mr. John Downward, Hampton Hall, Malpas.—I have had an Automaton Lawn Mower in constant work for a twelvemonth, and consider it a good and efficient implement.

7.—DERBYSHIRE.—From Mr. C. Benns, Clay Cress, Chesterfield.—The Automaton Lawn Mower you sent me answers very well; indeed it is the only one I have had which does not require more power to work it than is advertised.

8.—DEVONSHIRE.—From Mr. W. James, Ringmore House, Teignmouth.—My gardener informs me that the Automaton Lawn Mower with which you supplied me last summer, works admirably and quite to his satisfaction in all respects.

9.—DORSETSHIRE—From Mr. C. Beale, Wareham.—Be good enough to send off immediately a 14-inch Automaton Lawn Mower. The one you sent does its work in a first-rate style.

10.—DURHAM.—From Mr. Thos. Hall, Tatfield House, Washington.—The Automaton Lawn Mower purchased last season has given me good satisfaction, I shall have no hesitation in recommending it.

11.—ESSEX.—From E. C. Javal, Esq. Rancliffe House, East Ham.—I have great pleasure in expressing the satisfaction given to me by the Automaton Lawn Mower supplied by you in the year 1869. I may add that it is now as efficient as when I received it from you.

ESSEX.—From T. Eglinton A. Gwynne, Esq., J.P., F S.A., &c., Cliff House, Dovercourt.—I have much pleasure in stating that the Automaton Lawn Mower I obtained from your establishment works very satisfactorily. It does its work in a superior and rapid manner, and my gardeners express themselves much pleased with it.

ESSEX.—From the Rev. Percy Smith, Pattiswick Rectory, Braintree.—I have now given your Automaton Lawn Mower trial of full a year, and it has more than exceeded my expectations. It has never been out of order; and it performs its work expeditiously and efficiently. My gardener, an intelligent man, who knows well its make and performance, is much pleased with the machine, and has never regretted abandoning the scythe for it.

ESSEX.—From Mr. J. Douglas, Gardener to **F. Witbourn, Esq., Loxford Hall, Ilford.**—I have much pleasure in bearing testimony to the excellence of your Automaton Lawn Mower. It is remarkably easy to work, the arrangement for setting the knives is most simple, and the machine itself is not liable to get out of order. It is the most efficient Lawn Mower I have ever used.

ESSEX.—From E. Mead, Esq., South House, Great Waltham, Chelmsford.—The Automaton Lawn Mower is a first-class Machine. I am very pleased with its work. I have used it when the grass is wet, as well as when hard and dry, and see no difference in its work, which cannot be said of any others.

ESSEX.—From Mr. H. Harrison, Gardener to **W. H. Dunnett, Esq., Dedham.**—Now the mowing season is past, I beg to testify to you my satisfaction with the 36-inch and 20-inch Automaton Lawn Mowers I got from you last May; I have used the 36-inch Machine with a small pony, on a very sloping piece of grass, with perfect ease and it has done its work in a most perfect and satisfactory manner. Of the 20-inch hand Machine, enough cannot be said in its praise; the easiness of draught, and the clean and perfect cut, are most satisfactory. Our lawn was sown with grass seed, so it was rather in a rough state when we commenced with your Machines, now it is all one can wish for I have great pleasure in recommending your 20-inch Lawn Mower for small places, as the best I have used.

12.—GLOUCESTERSHIRE.—From Mr. E. Bridges, Collonade, Cheltenham.—The Automaton Lawn Mower you sent me is one of the best I have ever seen, and does its work admirably. I shall recommend these Machines wherever I can.

13.—HANTS.—From R. H. Cooper, Esq., Stud Farm, Lymington.—The Automaton Lawn Mower has given great satisfaction. It cuts the grass well, works easily, and has never got out of order.

HANTS.—ISLE OF WIGHT.—From John Le Mesurin, Esq., Bimbridge.—I am glad to be able to report that your Automaton Lawn Mower works most satisfactorily.

14.—HERTFORD.—Mr. J. Cooper, Maidenhead Street.—I have great pleasure in saying, from what I have seen of your Automaton Lawn Mowers, through my customers, that they really are very satisfactory. I think I am right in saying I have heard no complaint whatever. This fact will speak for their value, &c.

15.—HUNTS.—From A. Sperling, Esq., J.P., Lattenbury Hall, St. Ives.—I have used a Ransomes' small-size Automaton Lawn Mower for several years, and I prefer it to other machines. It does its work well and easily, and the wear and tear is slight.

HUNTS.—From Mr. Jas. Bartram, Gardener to **J. Rust, Esq., Alconbury House.**—I have much pleasure in recommending your Automaton Lawn Mower, having had one for two seasons, which for durability, freeness of cutting and convenience, has given me great satisfaction.

16.—KENT.—From A. Jackson, Esq., Mayfield Place, Orpington.—The Automaton Lawn Mower is a first-rate one, and cannot be better. The Archimedian, just come out, will not go down, for it leaves the cut grass on the lawn, which has to be swept off afterwards.

KENT.—From G B. Airy, Esq., Astronomer Royal, Royal Observatory, Greenwich.—The Automaton Lawn Mower furnished by you in 1869, works quite to our satisfaction. We find in experience that the grass ought to be mown in a drier state than when cut with the scythe; also that care ought to be taken that there be no special inequalities of ground, and no loose pebbles. These cautions, I presume, must be necessary in the use of every lawn mower. With a trifling attention to these points, the implement works extremely well. There has been no breakage of any importance.

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Reports on the Automaton Lawn Mower, continued.

17.—**LANCASHIRE.—From Mr. C. Rylance, Town Green, Aughton, Ormskirk.**—The Automaton Lawn Mower came to hand safely, and gives satisfaction. I will take every opportunity of recommending your machines.

18.—**LEICESTERSHIRE.—From E. Fisher, Esq., Market Harboro'.**—The Ransomes' 10-in. Lawn Mower works very well indeed.

19.—**LINCOLNSHIRE.—From J. L. Bell, Esq., Bourn.**—I beg to bear testimony to the general good qualities, in addition to the material and manufacture of your Automaton Lawn Mower. I have other machines, but in preference, always use yours, as none approach it for steady, uniform, clean cutting.

20.—**MIDDLESEX.—From J. J. Arrow, Esq., Dalston.**—I have much pleasure in informing you how excessively well your Automaton Lawn Mower works. I have had it constantly in use for the last two summers, and therefore can testify as to its good qualities, both as regards its use and durability, and have no hesitation in saying that it surpasses all others I have seen in working and simplicity

MIDDLESEX.—From C. Ballance, Esq., Stanley House, Lower Clapton.—I have much pleasure in bearing testimony to the excellence of your Automaton Lawn Mower. I have had it in constant use for two years, and as yet it has needed no repairs, I am just commencing to use it for the third season.

21.—**NORFOLK.—From Mr. T. Williams,** Gardener to **R. Bagge, Esq., Gaywood Hall, King's Lynn.**—The Automaton Lawn Mower that we had of you gives me great satisfaction, and I have no hesitation in saying that it is the best machine I have ever used for easiness of draught and uniform surface.

NORFOLK.—From W. M. Hazard, Esq., Harleston.—The 20-in. Ransomes' Automaton Lawn Mower I purchased of you gives me perfect satisfaction, and I think it is in every respect a first-class machine, very simple and easy to work.

22.—**NORTHAMPTONSHIRE.—Rev. A. W. Annand, Roade Vicarage, Northampton.**—The Rev. A. W. Annand, has much pleasure in stating that he has one of Messrs. Ransomes' 14-in. Automaton Lawn Mowers in use for the last two years, and that during that time it has never been out of order, but has done its work entirely to his satisfaction.

23.—**NORTHUMBERLAND.—From J. Gibson, Esq., Roseworth Tower, Gosforth**—My gardener has used Ransomes' Automation Lawn Mower for nearly three years, and it has given entire satisfaction

24.—**NOTTINGHAMSHIRE.—From Rev. C. H. Prance, Sutton Ashfield, Mansfield.**—I am entirely satisfied with the Automaton Lawn Mower you sent me.

25.—**OXFORDSHIRE.—From Mrs. Brickwell, Overthorpe Lodge, Banbury.**—Mrs. Brickwell has had two of Messrs. Ransomes' Automaton Lawn Mowers in use for four years; they have done the work well, without requiring any repairs.

OXFORDSHIRE.—From R. Noddings, Esq., Elm Tree Villa, Cowley, Oxford.—The 10-inch Automaton Lawn Mower I bought of you at the Oxford Show last year is everything that I can wish for. My young stable-boy can work it with the greatest ease.

26.—**SHROPSHIRE.—From Vice-Admiral F. Vere Cotton, Allport House, Whitchurch.**—I am much pleased with Messrs. Ransomes' Automaton Lawn Mower, it is doing its work perfectly.

27.—**SOMERSETSHIRE.—From Mr. Henry Barker, Mountlands, Taunton.**—The Automaton Lawn Mower I bought of you last year works very well, and its construction is good.

28.—**STAFFORDSHIRE.—From H. M. Morgan, Esq., M.D., Lichfield.**—After having used the Ransomes' Automaton Lawn Mower the whole of last summer, I am able to say it does its work efficiently, and has given me entire satisfaction.

29.—**SUFFOLK.—From L. P. Jeffs, Esq., Weybread.**—The two Ransomes' Automaton Lawn Mowers are the best machines I ever saw. They do their work beautifully, quite beyond my expectations.

SUFFOLK.—From J. R. Ansell, Esq., Kirton.—I have great pleasure in informing you that the Automaton Lawn Mower with which you supplied me in 1869 meets with my approval. I have never had any thing done to it, and it is now in first-class order.

SUFFOLK.—R. Porter, Esq., Rushmere, Ipswich.—I have much pleasure in stating that the Automaton Lawn Mower gives great satisfaction, working very efficiently and being easily kept in order.

30.—**SURREY.—From J. Powell, Esq., Field House, Lark Hall Rise, Clapham.**—I am much pleased with the Automaton Lawn Mower you supplied to me in 1869. It does its work very well, and has required no adjusting or sharpening during the whole period.

SURREY.—From R. C. Bell, Esq., Kew.—My Automaton Lawn Mower has worked very well, but I find it goes easier without the box, and as the cuttings improve the grass, and have no slovenly appearance, I have left off using that appendage for some time.

SURREY.—From A. Neame, Esq., Court Lodge, Sutton.—The Automaton Lawn Mower you supplied to me in 1869 is apparently as good as when I first had it, after having been constantly used, and has not cost me one shilling to keep in order. I see no prospect of requiring another; should I do so, I should certainly purchase an Automaton.

31.—**SUSSEX.—From B. H. Combe, Esq., J.P., Oaklands, Westfield, near Battle.**—I am very much pleased with the Automaton Lawn Mower; it works very well and easily.

32.—**WARWICKSHIRE.—From E. Scriver, Esq., Wormleighton Hill, Leamington.**—The 12-inch Automaton Lawn Mower I had from you in 1867 continues to do its work efficiently, and I consider it a most excellent and durable machine.

33.—**WILTSHIRE.—From J. Ferris, Esq., Little Wishford, near Salisbury.**—I consider the Automaton Lawn Mower I purchased last year, a very useful machine. As it cuts the grass level and makes clean work behind, and by so doing, saves manual labour.

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34.—**WORCESTER.—From Messrs. Clunes and Davis.**—We have tried one of your Automaton Lawn Mowers, and are pleased to say that it works very satisfactorily.

35.—**YORKSHIRE—From J. Blythe Robinson, Esq., Westwood, Beverley.**—I am happy to inform you that the Automaton Lawn Mower which I purchased of you in 1869 answers exceedingly well; I like it very much. It has never given way in any part, and does it work just as well as when it was new, although it has been constantly used. Some other lawn mowers are frequently getting out of order, and are the subject of continual complaint.

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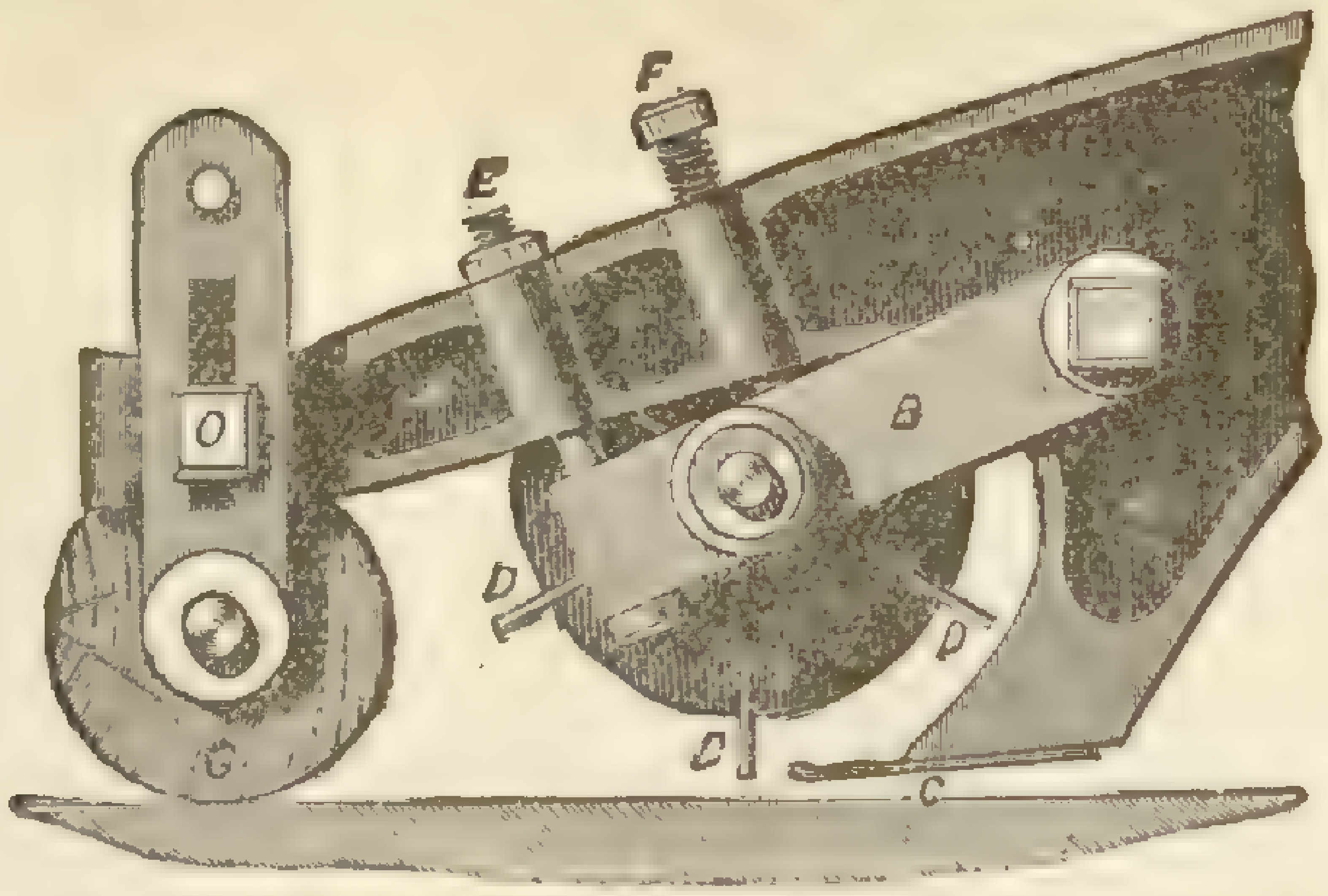

Showing mode of Adjusting the Cutters to the Ledger Blade, and regulating the cutting height from the ground.

B the adjustable arm which carries the revolving knives or cutters D D. C is the fixed "ledger" or cutting blade, against the front edge of which the knives D D act. E and F are adjusting screws for accurately regulating the revolving knives D D to the fixed ledger blade C. G are wooden rollers which support the front of the Machine and keep the knives and ledger blade just clear of the ground. These rollers are easily adjusted by screws O, so as to regulate the cutting height from the ground. The revolving knives D D should just press lightly against the fixed ledger blade C, and this degree of nicety can be easily and exactly adjusted by means of the screws E and F. If, for instance, the knives do not quite touch the ledger blade C, slacken the nut E a trifle, and tighten the screw F. If, on the contrary, the cutters press too hard upon the blade C, then slacken the screw F and tighten up the nut E. A leaf of a plant or shrub, or a slip of writing paper applied between the edges of the revolving knives D D and the edge of the ledger blade C, will show when they cut properly by producing a clean cut, on the knives being made to revolve, and no more pressure or closeness ought to be given than is sufficient to produce this effect. Care should be taken never to overstrain the set screws, but they should be tight enough to ensure their not becoming loose of themselves.

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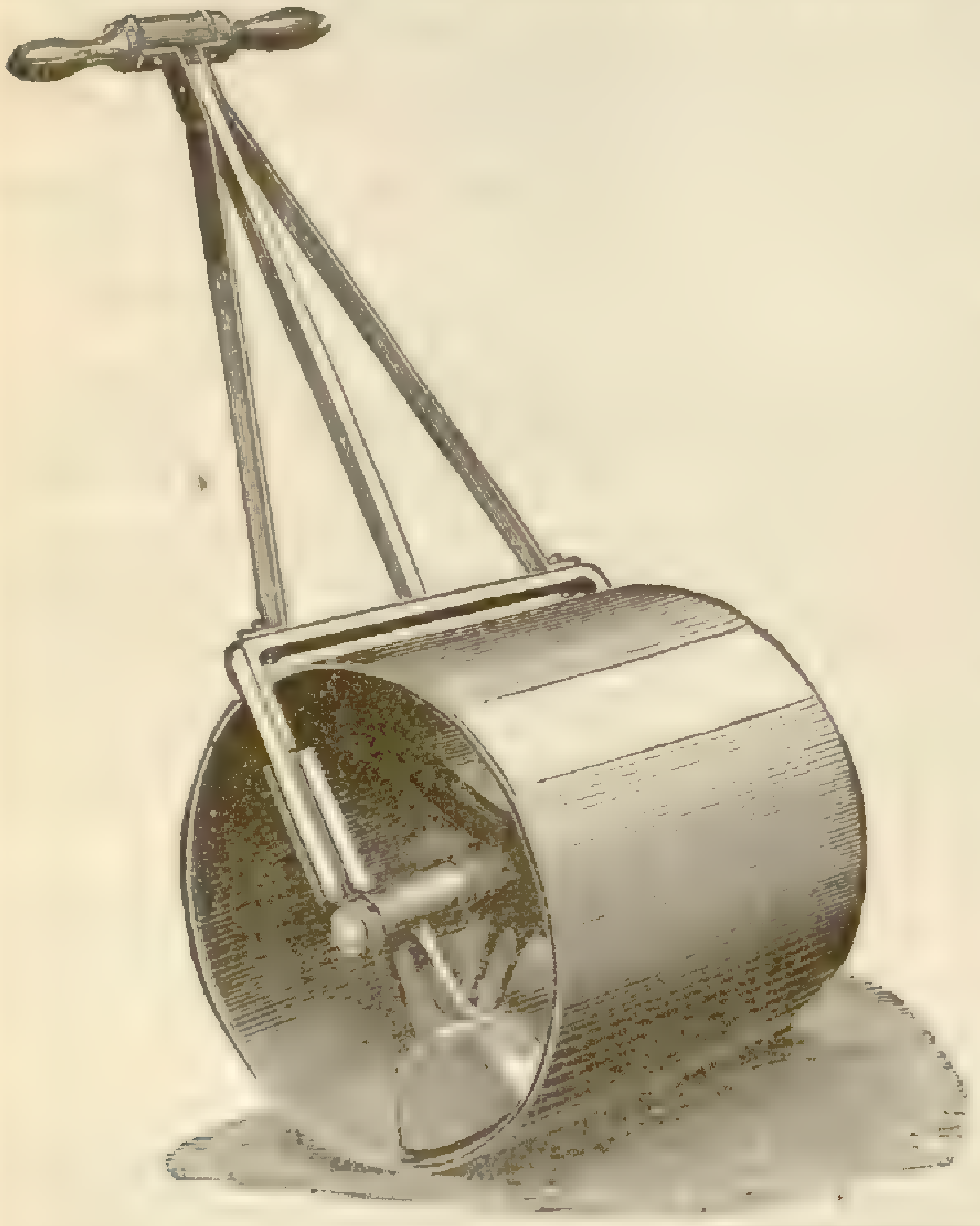

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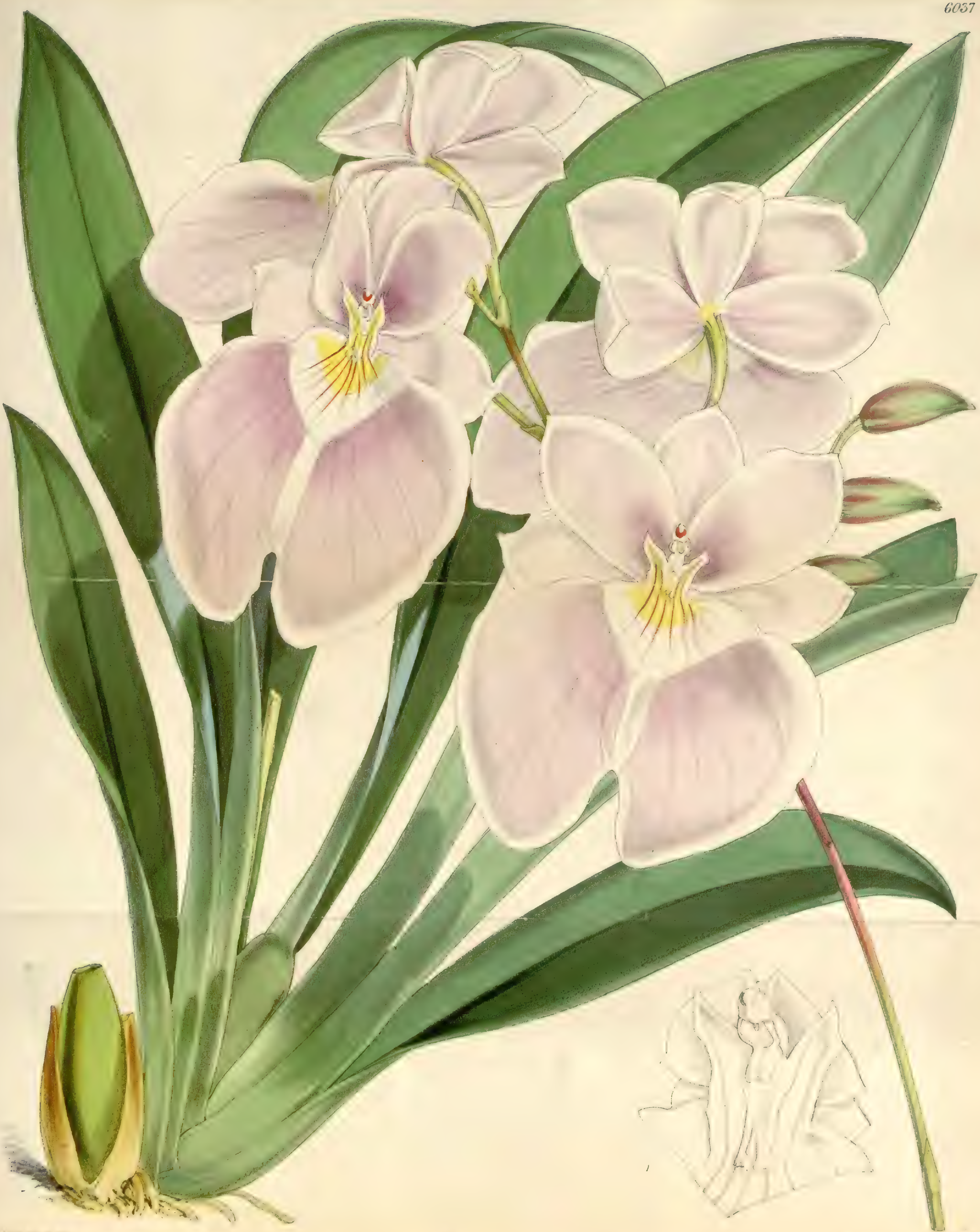

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TAB. 6037.

ODONTOGLOSSUM VEXILLARIUM.

Native of New Grenada.

Nat. Ord. ORCHIDEÆ.—Tribe VANDEÆ.

Genus ODONTOGLOSSUM, *H. B. and K.; (Lindl. Fol. Orchid., Odontoglossum).*

ODONTOGLOSSUM (Phalænopsoidea) *vexillarium;* pseudobulbis parvis anguste oblongis compressis, foliis pedalibus anguste elliptico-lanceolatis acuminatis, scapo gracili 2–4-flore, floribus maximis roseo-suffusis, perianthio plano, marginibus foliolorum basique labelli albis, sepalis petalisque late obovato-oblongis obtusis acutis v. subacutis, labello maximo orbiculari 2-lobo, ima basi in unguem brevem contracto, ungue hastato angulis in cornua acuta adscendentia productis, disco pauci-calloso, columna brevissima exalata.

ODONTOGLOSSUM vexillarium, *Reichb. f. in. Gardeners' Chronicle,* 1867, p. 901; 1872, p. 667 *cum in Xylog.*; 1873, p. 580, *and* 644, fig. 123.

The first notice of this plant, which is now deservedly the envy of every Orchid grower who does not possess it, appeared in the "Gardeners' Chronicle" of 1867, where, as we gather from our friend Professor Reichenbach, the interests of science are unfortunately sacrificed to the desire of the sole possessor of any useful information regarding its origin and country that these should be withheld from the public. In the volume for 1872, however, a full account of its introduction, obtained from various growers, is given by Professor Reichenbach, and from which I learn that the plant was overlooked by Warscewicz, discovered by the late lamented Bowman on the western slope of the Andes of New Grenada, and sent home alive, but in a dying state, first by Mr. Wallis, when collecting for Mr. Linden, and secondly by Mr. Roezl, also dead, and lastly, by Mr. Henry Chesterton, whose plants flowered with Messrs. Veitch, to whom I am indebted for the opportunity of now figuring it. Considering the worship now being paid to this Queen amongst Orchids, it would be

JUNE 1ST, 1873.

superfluous to discuss its beauty, to which Mr. Fitch has done no more than justice in the plate. Its resemblance to a *Miltonia* in flower is very striking, and it adds another instance to the many existing of the difficulty there is in fixing the generic limits of epiphytic Orchids. The form of the sepals and labellum and their relative sizes vary exceedingly, and are very dissimilar from those figured in the Gardeners' Chronicle (1873, fig. 123), also from Messrs. Veitch's Orchid houses.

Descr. *Pseudobulbs* one and a half to two and a half inches long, narrow-oblong, compressed. *Leaves* six to twelve inches long, by one to one and a half inches broad, narrowly elliptic-lanceolate from a narrower sheathing base, acute, keeled, deep green above, paler beneath. *Scapes* several, sometimes six from one pseudobulb, very slender, longer than the leaves, sheaths small, distant, appressed. *Racemes* 3–4-flowered; flowers on slender pedicels, bracts a quarter of an inch long. *Flowers* much the largest of the genus, very variable in size, the largest four inches long; perianth quite flat. *Sepals* subequal, obovate-oblong or obovate-cuneate, subacute or truncate, flat, rather recurved, very pale rose-coloured. *Petals* larger or smaller than the sepals, and of the same shape, but usually more acute, of a deep rose-colour, with a broad white margin. *Lip* quite flat, of one large, almost rounded 2-lobed limb, contracted into a claw at the base, and produced there into two ovate acute ascending bracts; there is a small 2-lobed callus at the very base of the claw, close to the column, and three small ones at its distal end; the lip is white, suffused with deep rose-colour on the disk of each half, and pale yellow streaked with red on the claw. *Column* very short indeed.—*J. D. H.*

Fig. 1, Base of lip and column:—*magnified.*

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Tab. 6038.

LÆLIA Jonghiana.

Native of Brazil.

Nat. Ord. Orchideæ.—Tribe Epidendreæ.

Genus Lælia, *Lindl.; (Gen. et Sp. Orchid.*, p. 115).

Lælia *Jonghiana;* rhizomate robusto radicibus crassis, pseudobulbis approximatis erectis compressis elliptico-oblongis tunica alba apice oblique truncata acuta latere fissa arcte indutis, folio solitario brevi lato elliptico-oblongo apice rotundato emarginato crapissime coriaceo saturate viridi, scapis 1–2-floris, floribus 4–4½ poll. diametr., labelli apice albo excepto amethystinis, sepalis lineari-lanceolatis acutis, petalis late elliptico-oblongis obtusis, labelli lobis undulatis crispatis et erosis albis, disco carinis 7 aureis parallelis undulatis ante lobum medium abrupte terminatis ornato, columna elongata exalata, pollinia 8.

Lælia Jonghiana, *Reichb. f. and Libon in Gardeners' Chronicle*, 1872, p. 425 f. 128.

According to Professor Reichenbach this very distinct and beautiful plant was discovered by M. Libon, an ill-fated young traveller, who fell a victim to his zeal in the Brazils, and after whom the pretty genus *Libonia* was named; and the introduction is due to Mr. de Jonghe of Brussels, an eminent cultivator, after whom it was named in accordance with M. Libon's wishes. The specimen here figured was communicated by Messrs. Veitch, with whom it flowered in March of the present year.

In the sixth volume of Walper's "Annales," the genera *Cattleya, Lælia*, and *Bletia* are united by Dr. Reichenbach under the latter name: I prefer to follow his practice in separating at any rate the membranous plaited leaved species of *Bletia* proper, from the coriaceous-leaved *Cattleyas* and *Lælias*—though, as between *Pleione* and *Cælogyne*, the difference is not always easy to support.

Descr. *Rhizome* very stout, creeping, with remarkably thick root-fibres. *Pseudobulbs* one and a half to two and a half inches long, approximate, narrow ovate-oblong, compressed, green, clothed with a white membranous appressed sheath, that ends in a short point, and is usually split on one side; a short outer boat-shaped sheath also envelops the base of the pseudobulb. *Leaf* sessile, short, three to five inches long by one and a half to one and three-quarters of an inch broad, broadly oblong, tip rounded (rarely acuminate, according to Mr. Lüddemann), or emarginate, very coriaceous, indeed, deep bright green and shining. *Scape* stout, much shorter than the leaf, 1–2-flowered. *Flower* four inches in diameter across the petals, which, as well as the sepals and convolute body of the lip, are of a bright amethyst colour. *Sepals* linear-lanceolate, acute. *Petals* larger and broader than the petals, broadly elliptic-oblong, obtuse. *Lip* convolute; lateral lobes very shallow, and, as well as the short emarginate midlobe, white with crisped and waved minutely toothed margins; disk of the body of the lip white, with seven parallel, slender undulate, golden-yellow ridges, which are not prolonged on to the midlobe. *Column* slender, not winged. *Pollen masses* eight.—*J. D. H.*

Fig. 1, Column; 2, lip spread open; 3 and 4, front and back view of pollen-masses:—*all magnified.*

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TAB. 6039.

BEGONIA HERBACEA.

Native of Brazil.

Nat. Ord. BEGONIACEÆ.

Genus BEGONIA, *Linn.*; (*A. DC. Prodr.*, vol. xv. pt. 1, p. 278).

BEGONIA (Trachelocarpus) *herbacea;* rhizomate crasso repente apice folioso, foliis subsessilibus v. petiolatis confertis elongato-oblanceolatis acuminatis irregulariter denticulato-serratis viridibus basi contractis obtusis v. in petiolum angustatis, stipulis ovatis pectinato-ciliatis, floribus masculis ad apicem scapi elongati umbellatis, bracteis 2 oppositis concavis ciliatis, sepalis 2, petalis 0, fœmineis axillaribus sessilibus 3-sepalis, petalis 0, ovario lagenæformi, stigmatibus reniformibus apicibus brevibus tortis.

BEGONIA herbacea; *Vellozo Flor. Flum.*, vol. x. t. 53; *A. DC. Prodr.*, vol. xv. p. 388.

B. attenuata, *Masters in Gard. Chron.*, 1873, p. 679, fig. 129 (*not of A. DC.*)

This singular species of *Begonia* belongs to a small and very little known Brazilian section of the genus, of which there are three supposed species, all very imperfectly described. They differ from their congeners in the monœcious inflorescence, on which the male flowers are raised on long scapes, and the females are sessile in the axils of the leaves. The species here figured is a native of Rio de Janeiro, and is published in the "Flora Fluminensis," a work equally remarkable for its pretentious character and the badness of its execution. The figure it gives of our plant forms no exception to this, omitting as it does the stipules, bracts, female flowers and all analysis, but being in other respects identical and very characteristic as to habit, I have no hesitation in assuming it to be the plant before me, and hence in adopting Vellozo's name. It is very probable that the other species of the section, *B. rhizocarpa*, Fischer, and *B. attenuata*, A. DC., may prove varieties of it, the former differing in the white-spotted leaves with fewer nerves and shorter male peduncles, and the latter in the fewer nerves, 2-flowered short male peduncles, and long petioles.

Begonia attenuata has long been cultivated at Kew, where it was received from the Botanical Gardens of Berlin; it has also been sent to me for determination by Mr. Burbidge from the Manchester Botanic Gardens. It flowers freely in the month of March.

Descr. *Rhizome* as thick as the little finger, creeping, cylindric, clothed with root fibres and persistent stipules. *Leaves* tufted at the end of the rhizome, four to six inches long, sessile or petioled, oblanceolate, acuminate, margin serrulate and obscurely lobed, quite glabrous, concolorous, pale green, nerves oblique, seven to eight on each side, base obtuse or acute; petiole naked or winged, the wings undulate. *Stipules* broadly ovate, pectinate-ciliate. *Scape* of male flowers rather shorter than the leaves, slender, terete, erect, 4–6-flowered; bracts orbicular, concave, pectinate-ciliate. *Male flowers* half to three quarters inch in diameter, umbelled, pedicels a quarter of an inch long. *Sepals* two, orbicular-ovate, obtuse, white *Anthers* in a globose stipitate head, cuneate, obtuse. *Female flowers* sessile in the axils of the leaves. *Ovary* turbinate from an obtuse base, contracted above into a beak one-third of an inch long, trigonous, angles winged, wings obscurely toothed or lobed. *Sepals* three, nearly orbicular, white. *Style* short, arms three, with reniform broad stigmas, the corners of which have twisted appendages. *Placentas* entire.—*J. D. H.*

Fig 1, Leaf: *natural size;* 2, stamens; 3 and 4, anthers; 5, ovary; 6, transverse section of ovary:—*all magnified.*

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TAB. 6040.

GREYIA SUTHERLANDI.

Native of Natal.

Nat. Ord. SAPINDACEÆ.—Sub-order MELIANTHEÆ.

Genus GREYIA, *Hook. and Harv.*; (*Benth. & Hook.f. Gen. Pl.*, vol. i. p. 100).

GREYIA *Sutherlandi*; *Hook. and Harv. in Harvey Thesaurus Capensis*, t. 1. *Harvey and Sonder Flor. Cap.*, vol. ii. p. 308; *Harvey Gen. S. African Plants.*, ed. 2, p. 62.

This singular and beautiful plant, which was raised by Dr. Moore from seed introduced into the Glassnevin Gardens about the year 1859, has been so extensively distributed both by himself and from Kew, that it is now one of the commonest plants in European Botanic Gardens. Singularly enough, though growing very freely and even luxuriantly in our greenhouses, it had never flowered in Europe, except (I believe) in the south of France, till March of the present year, when a small plant in a 6-inch pot, in the Chelsea Botanic Gardens, having been starved for the purpose, threw off all its leaves, and put forth instead a raceme of coral-like buds, which the curator, Mr. Thomas Moore, was good enough to communicate to me for figuring in the Botanical Magazine. This, though much inferior as to its inflorescence to the wild specimens (which bear upwards of 100 flowers in racemes two to three inches in diameter) is so characteristic, that I gladly take the opportunity of figuring it.

Greyia Sutherlandi forms a small tree at Port Natal, described by its discoverer, Dr. Sutherland, the Surveyor-General of the colony and an ardent naturalist, as growing in clefts of much exposed headlands, at elevations of 2000 to 6000 feet, in the Drakenburg mountains, and flowering in August and September (early spring). It was named after Sir George Grey, K.C.B., Governor-General of the Cape Colony at the time of its discovery.

JUNE 1ST, 1873.

The affinities of *Greyia* are not at first obvious, and are still disputed. Dr. Harvey referred it doubtfully to *Saxifrageæ*, and I unhesitatingly to the suborder *Melianthea* of *Sapindaceæ*, a position which my friend did not accept, on the ground that it differs from *Sapindaceæ* "in its 1-celled ovary, parietal placentas, indefinite and very numerous ovules, copiously albuminous seeds, and minute straight embryo." (See Gen. S. Afric. Pl. ed. 2, p. 62). But the ovary is 5-celled, and the placentas axile, whilst all the other characters noted above as discrepant, actually accord precisely with those of *Meliantheæ*, to which the curious thick branches, unequal stamens, and membranous almost follicular capsule further ally it, and leave no doubt in my mind of its true relationship with that order. The figure here given is taken from dried specimens in part. Professor Oliver has remarked upon native specimens recently received from Mr. Cooper, that the petiole, in falling away, carries with it the old cuticle of the bark from a considerable portion of the branch.

Descr. A small tree, with thick naked branches, covered with a yellowish brown bark. *Leaves* clustered at the ends of the branches, spreading, petioled, two to three inches long, orbicular ovate or oblong, deeply cordate at the base, margins lobulate and toothed, glabrous, minutely glandular, veins spreading, deep green above, paler beneath; petiole three-quarters to one inch long, dilated at the base. *Racemes* terminal, four to six inches long, subcylindric, two to three inches in diameter, very many-flowered; bracts lanceolate; pedicels glabrous, one-half to three-quarters of an inch long. *Flowers* drooping, densely imbricating downwards, subglobose, about half an inch in diameter. *Calyx* hemispheric, green, with five broad rounded erect lobes. *Petals* five, subequal, much longer than the calyx, orbicular, concave, glossy, scarlet, fleshy and shining. *Disk* cupular, with ten marginal teeth, each crowned with a peltate gland. *Stamens* ten, subregular, hypogynous, filaments curved, slender, red, exserted; anthers short, dark red-purple. *Ovary* elongate-ovoid, laterally 5-lobed, 5-celled, narrowed into a subulate style with a punctiform stigma; ovules numerous, biseriate in the inner angle of the cells. *Fruit* capsular, septicidally 5-valved, membranous, many-seeded. *Seeds* albuminous, embryo minute. —*J. D. H.*

Fig, 1, Flower; 2, the same with the calyx and petals removed; 3, portion of disk and glands; 4, ovary; 5, transverse section of ditto; 6, capsule:—*all but fig.* 6 *magnified.*

6041.

W Fitch del et lith.

Vincent Brooks Day & Son Imp

TAB. 6041.

LINARIA HETEROPHYLLA.

Native of Marocco.

Nat. Ord. SCROPHULARINEÆ.—Tribe ANTIRRHINEÆ.

Genus LINARIA, *Linn.*; (*Benth. in DC. Prodr.*, vol. x. p. 265).

LINARIA (Linariastrum) *heterophylla;* annua, caule erecto gracili parce ramoso superne et inflorescentia glanduloso-puberulis, foliis alternis linearibus obtusis laxis, floribus breviter pedicellatis dense confertis pallide stramineis, bracteis parvis oblongis pedicellis brevioribus, calyce parvo segmentis linearibus erectis, corolla pollicari caliare recto subulato tubo æquilongo, labio superiore recto elongato alte bifido, labii inferioris lobo medio perbrevi lateralibus deflexis breviore, palato valde prominente, capsula brevi compressa calycem vix excedente, stylo 2-fido, seminibus minutis, curvis obtuse trigonis transverse sulcatis.

LINARIA heterophylla, *Desfont. Fl. Atlant.*, vol. ii. p. 48, t. 140.

L. reticulata, *Reichb. Iconogr.*, t. 431; *non Desf.*

L. stricta, *Guss, Pl. Rar. Sic.*, p. 250.

L. aparinoides, *Chav. Monog.*, p. 138; *Benth. in DC. Prodr.*, vol. vii. p. 275.

ANTIRRHINUM aparinoides, *Willd. Sp. Pl.*, vol. iii. p. 247.

A. strictum, *Sm. et Sibth., Flor. Græc.*, vol. vi. p. 75, t. 594.

A. multicaule, *Ten. Fl. Nap. Prodr.*, p. 36 *non Linn.*

A tall branching annual, not uncommon in fields at the foot of the Greater Atlas, and at Casa-blanca on the west (Atlantic) coast of Marocco, a country which, as remarked under the beautiful *L. maroccana* (Tab. nost. 5983), abounds in species of this genus. Though resembling a good deal at first sight the English *L. vulgaris*, it differs conspicuously in the pale flowers, small bracts, very prominent palate, remarkably long straight deeply 2-lobed upper lip of the corolla, in the very short midlobe of the lower lip, and the small capsule not exceeding the calyx; it is further an annual, and of a more branching habit; the seeds, also, are wholly different, not, as erroneously figured by the artist in

JUNE 1ST, 1873.

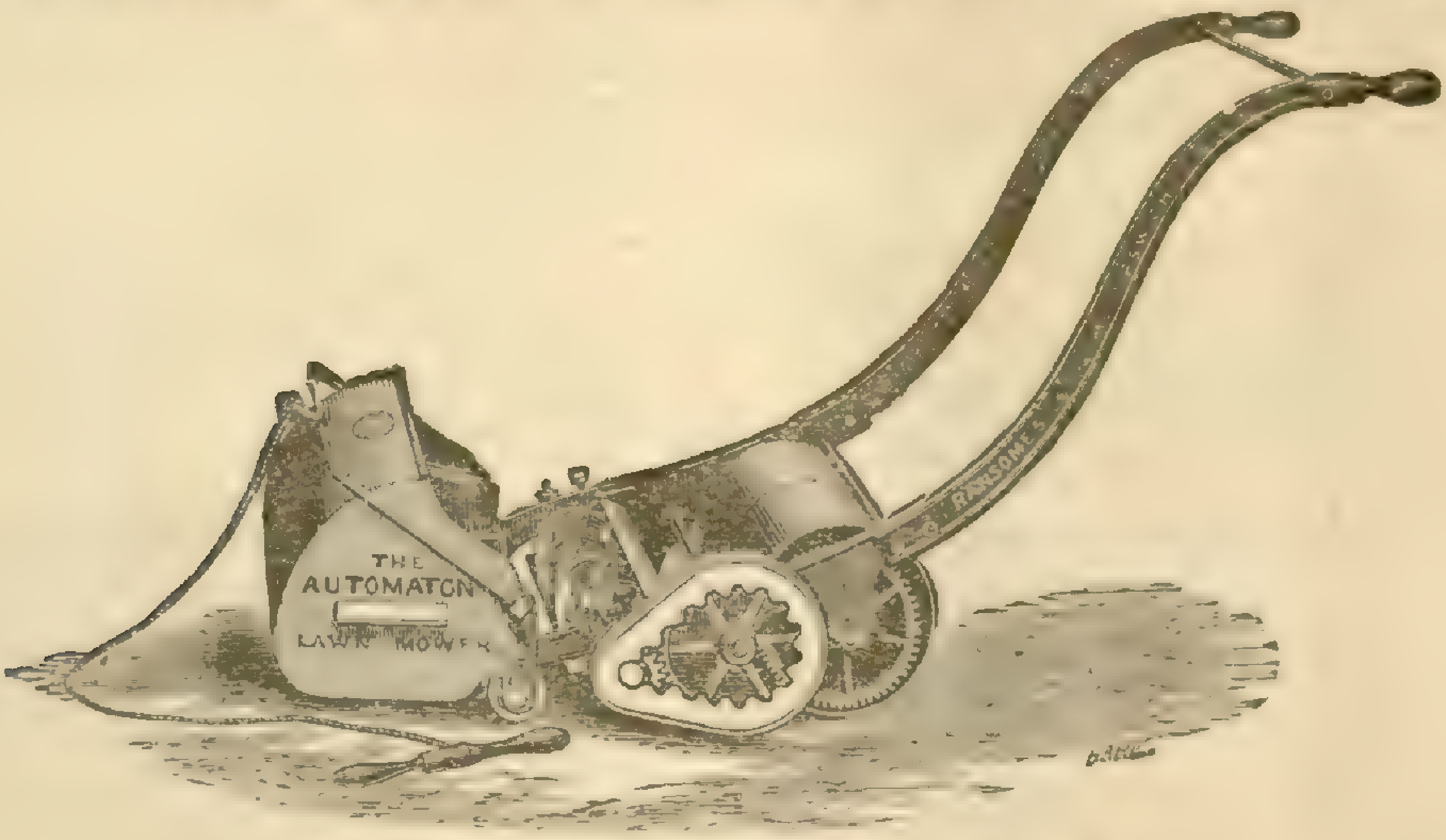
our plate, discoid with an orbicular wing, but minute trigonous and deeply transversely grooved.

L. pallidiflora was raised from seed brought by Mr. Maw and myself from Marocco in 1871, and flowered in July of the following year. It is a native of Sicily and Cyprus, but was discovered by Desfontaines in North Africa, and described and figured by him as *L. heterophylla* in 1798. Willdenow, in 1800, referring all *Linarias* to *Antirrhinum*, in which there was already an *A. heterophyllum*, altered the trivial name to *aparinoides;* lastly, Chavin, in 1833, restored the plant to *Linaria*, but carelessly adopted Willdenow's trivial name, in which he has been followed by subsequent authors. The *L. tingitana* of Bossier and Heldreich is a more robust variety, with broader leaves, which has been gathered by Mr. Ball and myself at Cape Spartel. The Mount Atlas specimens are much more slender than those found nearer the coast. The *L. viscosa*, Dum., of Spain, is probably another form.

Descr. A tall annual erect herb, two to three feet high, dark green, not glaucous, branching from the base, glabrous below, glandular-pubescent towards the tips of the branches and throughout the inflorescence. *Leaves* scattered, spreading, one to two inches long, narrow linear or acicular, obtuse, rarely narrowly elliptic, lanceolate, rather fleshy, 1-nerved. *Racemes* usually branched at the base, branches slender, not leafy, elongating much after flowering, conical in bud. *Flowers* densely packed, shortly pedicelled; bracts oblong-linear or subspathulate, obtuse, shorter than the pedicels, or equalling them, suberect, green. *Calyx* rather longer than the pedicel, one quarter to one third of an inch long; segments linear-oblong or spathulate, obtuse, green, erect, not spreading, nearly equal. *Corolla*, including the spur, an inch long, very pale straw-coloured, with a pale golden yellow patch; upper lip very long, erect, 2-lobed to the middle, keeled in front, the lobes obtuse reflected; lower lip veined, side lobes deflected, midlobe very short, semicircular; palate obtusely conical, 2-lobed; spur slender, very acute, quite straight, in a line with and as long as the neck of the corolla. *Style* 2-fid. *Capsule* very small, equalling the calyx, obtuse, compressed. *Seeds* minute, curved, black, deeply transversely grooved.—*J. D. H.*

Fig. 1, Flower: *magnified.*—N.B. The figure of the fruit and seeds (fig. 3) should be cancelled. I suspect that they were taken from *L. maroccana* (*Tab. nost.* 5983), which was collected along with *L. heterophylla.*

"AUTOMATON LAWN MOWER"



DESIGNED AND MANUFACTURED BY

RANSOMES, SIMS & HEAD, IPSWICH.

RANSOMES, SIMS & HEAD are the oldest manufacturers of Lawn Mowers, their experience in these Machines extending over more than thirty years. The Automaton Lawn Mowers were brought out in 1867 from entirely new designs and patterns, embodying the latest improvements suggested by long and varied experience. From the universal approbation they have met with, R. S. & H. can recommend them with the greatest confidence.

Machine-made Gearing is adopted for communicating motion to the knives, being the best and simplest plan far superior to chains or other methods; as whilst almost noiseless, it is not liable to get out of order.

The Cutting Barrels are fitted with the best knives, of rolled steel and iron combined. The steel forms the cutting edge and the iron at the back wears away faster than the steel edge, thus maintaining a sharp cutting edge much longer than when the knives are entirely of steel, or steel both front and back. The pivots and bearings are of hardened steel, so that these important parts will last several seasons without requiring repair.

No Ribs in the Grass are left by these Machines, but a beautiful flat uniform surface is obtained, giving the lawn a carpet-like appearance, very far superior to any work which can be done with a scythe and at a much less cost.

All the Grass is Collected by these Machines thus obviating the necessity of sweeping the lawn after it is cut.

If desired the Cut Grass can be Left on the Lawn by simply removing the box in front of the Machine, thus combining the advantages of both the systems of lawn mowing before the public.

**THEY ARE EXTREMELY SIMPLE, VERY DURABLE, LIGHT IN DRAUGHT,
AND NOT LIABLE TO GET OUT OF ORDER.**

MORE THAN 7,000 AUTOMATON LAWN MOWERS

Have been sold since their introduction in 1867, and

ARE GIVING THE GREATEST SATISFACTION.

Testimonials from 35 English Counties given on the inside pages.

Prices, including Free Delivery to the Principal Railway Stations in England.

8-inch,	suitable for very small Lawns	£2	15	0
10-inch,	suitable for a Lady	3	10	0
12-inch,	,, Lad	4	10	0
14-inch,	to be used by a Man ...	£5	10	0
16-inch	to be used by a Man and Boy	6	10	0
18-inch		7	10	0
20-inch		8	0	0

Packing Cases, 5s. extra. These Cases are most convenient for keeping the Machines in during the Winter. Full prices allowed for Cases if returned.

A New Horse-Power Machine, with draft-bar complete, 36-inch, suitable for a Horse or Pony ... ... £24.

RANSOMES, SIMS & HEAD guarantee these Machines to perform their work perfectly, and if not approved of, they may be returned, carriage-paid, within a month.

[OVER.

REPORTS FROM THIRTY-FIVE COUNTIES

ON THE

"AUTOMATON LAWN MOWER."

1.—BEDFORDSHIRE.—From Mr. W. R. Southam, Dunstable.—Your Automaton Lawn Mower gives great satisfaction, and does its work remarkably well.

2.—BERKSHIRE—From Mr. J. Holden, Crown Nursery, Reading.—The Automaton Lawn Mower gives satisfaction to myself and the gentleman who has bought it. I will thank you to send me another 10-inch Machine immediately.

3.—BUCKS.—From Mr. W. Grimsdell, High Wycombe.—Mr. Grimsdell is very much pleased with the 16-in. Automaton Lawn Mower.

4.—CAMBRIDGESHIRE.—From the Rev. Edwd. J. Routh, M.A., Newnham—I have great pleasure in stating that the Automaton Lawn Mower I purchased from you a year ago gives me complete satisfaction in every way. It works well and smoothly, and does not get out of order.

CAMBRIDGESHIRE.—John Symonds, Esq., Dotterel Hall, Balsham, has used one of Ransomes, Sims & Head's Automaton Lawn Mowers for 4 years, and has much pleasure in saying that he can recommend it with confidence.

CAMBRIDGESHIRE.—From G. F. Josling, Esq., Great Thurlow Hall, nr. Newmarket.—Having used Messrs. Ransomes' Automaton Lawn Mower two seasons, I have pleasure in stating that I am perfectly satisfied with it in every way, and consider it a very useful machine, being both strong and light in draught.

CAMBRIDGESHIRE.—From Edwd. P. Frost, Esq., West Wratting Hall.—I have pleasure in stating that the Automaton Lawn Mower with which you supplied me, works very satisfactorily.

5.—CARNARVONSHIRE.—From Lt.-Col. Williams, Bangor.—Lieut.-Col. Williams begs to inform Messrs. R. S. & H. that the Automaton Lawn Mower arrived safely, and has been in daily use this week, working to his entire satisfaction.

6.—CHESHIRE.—From Mr. John Downward, Hampton Hall, Malpas.—I have had an Automaton Lawn Mower in constant work for a twelvemonth, and consider it a good and efficient implement.

7.—DERBYSHIRE.—From Mr. C. Benns, Clay Cress, Chesterfield.—The Automaton Lawn Mower you sent me answers very well; indeed it is the only one I have had which does not require more power to work it than is advertised.

8.—DEVONSHIRE.—From Mr. W. James, Ringmore House, Teignmouth.—My gardener informs me that the Automaton Lawn Mower with which you supplied me last summer, works admirably and quite to his satisfaction in all respects.

9.—DORSETSHIRE—From Mr. C. Beale, Wareham.—Be good enough to send off immediately a 14-inch Automaton Lawn Mower. The one you sent does its work in a first-rate style.

10.—DURHAM.—From Mr. Thos. Hall, Tatfield House, Washington.—The Automaton Lawn Mower purchased last season has given me good satisfaction, I shall have no hesitation in recommending it.

11.—ESSEX.—From E. C. Javal, Esq. Rancliffe House, East Ham.—I have great pleasure in expressing the satisfaction given to me by the Automaton Lawn Mower supplied by you in the year 1869. I may add that it is now as efficient as when I received it from you.

ESSEX.—From T. Eglinton A. Gwynne, Esq., J.P., F S A., &c., Cliff House, Dovercourt.—I have much pleasure in stating that the Automaton Lawn Mower I obtained from your establishment works very satisfactorily. It does its work in a superior and rapid manner, and my gardeners express themselves much pleased with it.

ESSEX.—From the Rev. Percy Smith, Pattiswick Rectory, Braintree.—I have now given your Automaton Lawn Mower trial of full a year, and it has more than exceeded my expectations. It has never been out of order; and it performs its work expeditiously and efficiently. My gardener, an intelligent man, who knows well its make and performance, is much pleased with the machine, and has never regretted abandoning the scythe for it.

ESSEX.—From Mr. J. Douglas, Gardener to **F. Witbourn, Esq., Loxford Hall, Ilford.**—I have much pleasure in bearing testimony to the excellence of your Automaton Lawn Mower. It is remarkably easy to work, the arrangement for setting the knives is most simple, and the machine itself is not liable to get out of order. It is the most efficient Lawn Mower I have ever used.

ESSEX.—From E. Mead, Esq., South House, Great Waltham, Chelmsford.—The Automaton Lawn Mower is a first-class Machine. I am very pleased with its work. I have used it when the grass is wet, as well as when hard and dry, and see no difference in its work, which cannot be said of any others.

ESSEX.—From Mr. H. Harrison, Gardener to **W. H. Dunnett, Esq., Dedham.**—Now the mowing season is past, I beg to testify to you my satisfaction with the 36-inch and 20-inch Automaton Lawn Mowers I got from you last May; I have used the 36-inch Machine with a small pony, on a very sloping piece of grass, with perfect ease and it has done its work in a most perfect and satisfactory manner. Of the 20-inch hand Machine, enough cannot be said in its praise; the easiness of draught, and the clean and perfect cut, are most satisfactory. Our lawn was sown with grass seed, so it was rather in a rough state when we commenced with your Machines, now it is all one can wish for I have great pleasure in recommending your 20-inch Lawn Mower for small places, as the best I have used.

12.—GLOUCESTERSHIRE.—From Mr. E. Bridges, Collonade, Cheltenham. The Automaton Lawn Mower you sent me is one of the best I have ever seen, and does its work admirably. I shall recommend these Machines wherever I can.

13.—HANTS.—From R. H. Cooper, Esq., Stud Farm, Lymington.—The Automaton Lawn Mower has given great satisfaction. It cuts the grass well, works easily, and has never got out of order.

HANTS.—ISLE OF WIGHT.—From John Le Mesurin, Esq., Bimbridge.—I am glad to be able to report that your Automaton Lawn Mower works most satisfactorily.

14.—HERTFORD.—Mr. J. Cooper, Maidenhead Street.—I have great pleasure in saying, from what I have seen of your Automaton Lawn Mowers, through my customers, that they really are very satisfactory. I think I am right in saying I have heard no complaint whatever. This fact will speak for their value, &c.

15.—HUNTS.—From A. Sperling, Esq., J.P., Lattenbury Hall, St. Ives.—I have used a Ransomes' small-size Automaton Lawn Mower for several years, and I prefer it to other machines. It does its work well and easily, and the wear and tear is slight.

HUNTS.—From Mr. Jas. Bartram, Gardener to **J. Rust, Esq., Alconbury House.**—I have much pleasure in recommending your Automaton Lawn Mower, having had one for two seasons, which for durability, freeness of cutting and convenience, has given me great satisfaction.

16—KENT.—From A. Jackson, Esq., Mayfield Place, Orpington.—The Automaton Lawn Mower is a first-rate one, and cannot be better. The Archimedian, just come out, will not go down, for it leaves the cut grass on the lawn, which has to be swept off afterwards.

KENT.—From G. B. Airy, Esq., Astronomer Royal, Royal Observatory, Greenwich.—The Automaton Lawn Mower furnished by you in 1869, works quite to our satisfaction. We find in experience that the grass ought to be mown in a drier state than when cut with the scythe; also that care ought to be taken that there be no special inequalities of ground, and no loose pebbles. These cautions, I presume, must be necessary in the use of every lawn mower. With a trifling attention to these points, the implement works extremely well. There has been no breakage of any importance.

RANSOMES, SIMS & HEAD, ORWELL WORKS, IPSWICH.

Reports on the Automaton Lawn Mower, continued.

17.—LANCASHIRE.—From Mr. C. Rylance, Town Green, Aughton, Ormskirk.—The Automaton Lawn Mower came to hand safely, and gives satisfaction. I will take every opportunity of recommending your machines.

18.—LEICESTERSHIRE.—From E. Fisher, Esq., Market Harboro'.—The Ransomes' 10-in. Lawn Mower works very well indeed.

19.—LINCOLNSHIRE.—From J. L. Bell, Esq., Bourn.—I beg to bear testimony to the general good qualities, in addition to the material and manufacture of your Automaton Lawn Mower. I have other machines, but in preference, always use yours, as none approach it for steady, uniform, clean cutting.

20.—MIDDLESEX.—From J. J. Arrow, Esq., Dalston.—I have much pleasure in informing you how excessively well your Automaton Lawn Mower works. I have had it constantly in use for the last two summers, and therefore can testify as to its good qualities, both as regards its use and durability, and have no hesitation in saying that it surpasses all others I have seen in working and simplicity.

MIDDLESEX.—From C. Ballance, Esq., Stanley House, Lower Clapton.—I have much pleasure in bearing testimony to the excellence of your Automaton Lawn Mower. I have had it in constant use for two years, and as yet it has needed no repairs, I am just commencing to use it for the third season.

21.—NORFOLK.—From Mr. T. Williams, Gardener to **R. Bagge, Esq., Gaywood Hall, King's Lynn.**—The Automaton Lawn Mower that we had of you gives me great satisfaction, and I have no hesitation in saying that it is the best machine I have ever used for easiness of draught and uniform surface.

NORFOLK.—From W. M. Hazard, Esq., Harleston.—The 20-in. Ransomes' Automaton Lawn Mower I purchased of you gives me perfect satisfaction, and I think it is in every respect a first-class machine, very simple and easy to work.

22.—NORTHAMPTONSHIRE.—Rev. A. W. Annand, Roade Vicarage, Northampton.—The Rev. A. W. Annand, has much pleasure in stating that he has one of Messrs. Ransomes' 14-in. Automaton Lawn Mowers in use for the last two years, and that during that time it has never been out of order, but has done its work entirely to his satisfaction.

23.—NORTHUMBERLAND.—From J. Gibson, Esq., Roseworth Tower, Gosforth.—My gardener has used Ransomes' Automation Lawn Mower for nearly three years, and it has given entire satisfaction

24.—NOTTINGHAMSHIRE.—From Rev. C. H. Prance, Sutton Ashfield, Mansfield.—I am entirely satisfied with the Automaton Lawn Mower you sent me.

25.—OXFORDSHIRE.—From Mrs. Brickwell, Overthorpe Lodge, Banbury.—Mrs. Brickwell has had two of Messrs. Ransomes' Automaton Lawn Mowers in use for four years; they have done the work well, without requiring any repairs.

OXFORDSHIRE.—From R. Noddings, Esq., Elm Tree Villa, Cowley, Oxford.—The 10-inch Automaton Lawn Mower I bought of you at the Oxford Show last year is everything that I can wish for. My young stable-boy can work it with the greatest ease.

26.—SHROPSHIRE.—From Vice-Admiral F. Vere Cotton, Allport House, Whitchurch.—I am much pleased with Messrs. Ransomes' Automaton Lawn Mower, it is doing its work perfectly.

27.—SOMERSETSHIRE.—From Mr. Henry Barker, Mountlands, Taunton.—The Automaton Lawn Mower I bought of you last year works very well, and its construction is good.

28.—STAFFORDSHIRE.—From H. M. Morgan, Esq., M.D., Lichfield.—After having used the Ransomes' Automaton Lawn Mower the whole of last summer, I am able to say it does its work efficiently, and has given me entire satisfaction.

29.—SUFFOLK.—From L. P. Jeffs, Esq., Weybread.—The two Ransomes' Automaton Lawn Mowers are the best machines I ever saw. They do their work beautifully, quite beyond my expectations.

SUFFOLK.—From J. R. Ansell, Esq., Kirton.—I have great pleasure in informing you that the Automaton Lawn Mower with which you supplied me in 1869 meets with my approval. I have never had any thing done to it, and it is now in first-class order.

SUFFOLK.—R. Porter, Esq., Rushmere, Ipswich.—I have much pleasure in stating that the Automaton Lawn Mower gives great satisfaction, working very efficiently and being easily kept in order.

30.—SURREY.—From J. Powell, Esq., Field House, Lark Hall Rise, Clapham.—I am much pleased with the Automaton Lawn Mower you supplied to me in 1869. It does its work very well, and has required no adjusting or sharpening during the whole period.

SURREY.—From R. C. Bell, Esq., Kew.—My Automaton Lawn Mower has worked very well, but I find it goes easier without the box, and as the cuttings improve the grass, and have no slovenly appearance, I have left off using that appendage for some time.

SURREY.—From A. Neame, Esq., Court Lodge, Sutton.—The Automaton Lawn Mower you supplied to me in 1869 is apparently as good as when I first had it, after having been constantly used, and has not cost me one shilling to keep in order. I see no prospect of requiring another; should I do so, I should certainly purchase an Automaton.

31.—SUSSEX.—From B. H. Combe, Esq., J.P., Oaklands, Westfield, near Battle.—I am very much pleased with the Automaton Lawn Mower; it works very well and easily.

32.—WARWICKSHIRE.—From E. Scriver, Esq., Wormleighton Hill, Leamington.—The 12-inch Automaton Lawn Mower I had from you in 1867 continues to do its work efficiently, and I consider it a most excellent and durable machine.

33.—WILTSHIRE.—From J. Ferris, Esq., Little Wishford, near Salisbury.—I consider the Automaton Lawn Mower I purchased last year, a very useful machine. As it cuts the grass level and makes clean work behind, and by so doing, saves manual labour.

WILTSHIRE.—From Mr. Geo. Wilkin, Gardener to **H. F. Talbot, Esq., Lacock Abbey.**—After using the Automaton Lawn Mower for nearly three years, it has given me entire satisfaction; it performs its work quickly and well, and I like the gear much better than chains. I feel much pleasure in recommending it to my friends, which I can do with confidence.

WILTSHIRE—From Mr. John Curnick, Netherstreet Farm, Bromham, Devizes.—The Automaton Lawn Mower I bought in 1869, gives me great satisfaction; it works easily, does its work well, and has greatly improved my lawn.

34.—WORCESTER.—From Messrs. Clunes and Davis.—We have tried one of your Automaton Lawn Mowers, and are pleased to say that it works very satisfactorily.

35.—YORKSHIRE—From J. Blythe Robinson, Esq., Westwood, Beverley.—I am happy to inform you that the Automaton Lawn Mower which I purchased of you in 1869 answers exceedingly well; I like it very much. It has never given way in any part, and does it work just as well as when it was new, although it has been constantly used. Some other lawn mowers are frequently getting out of order, and are the subject of continual complaint.

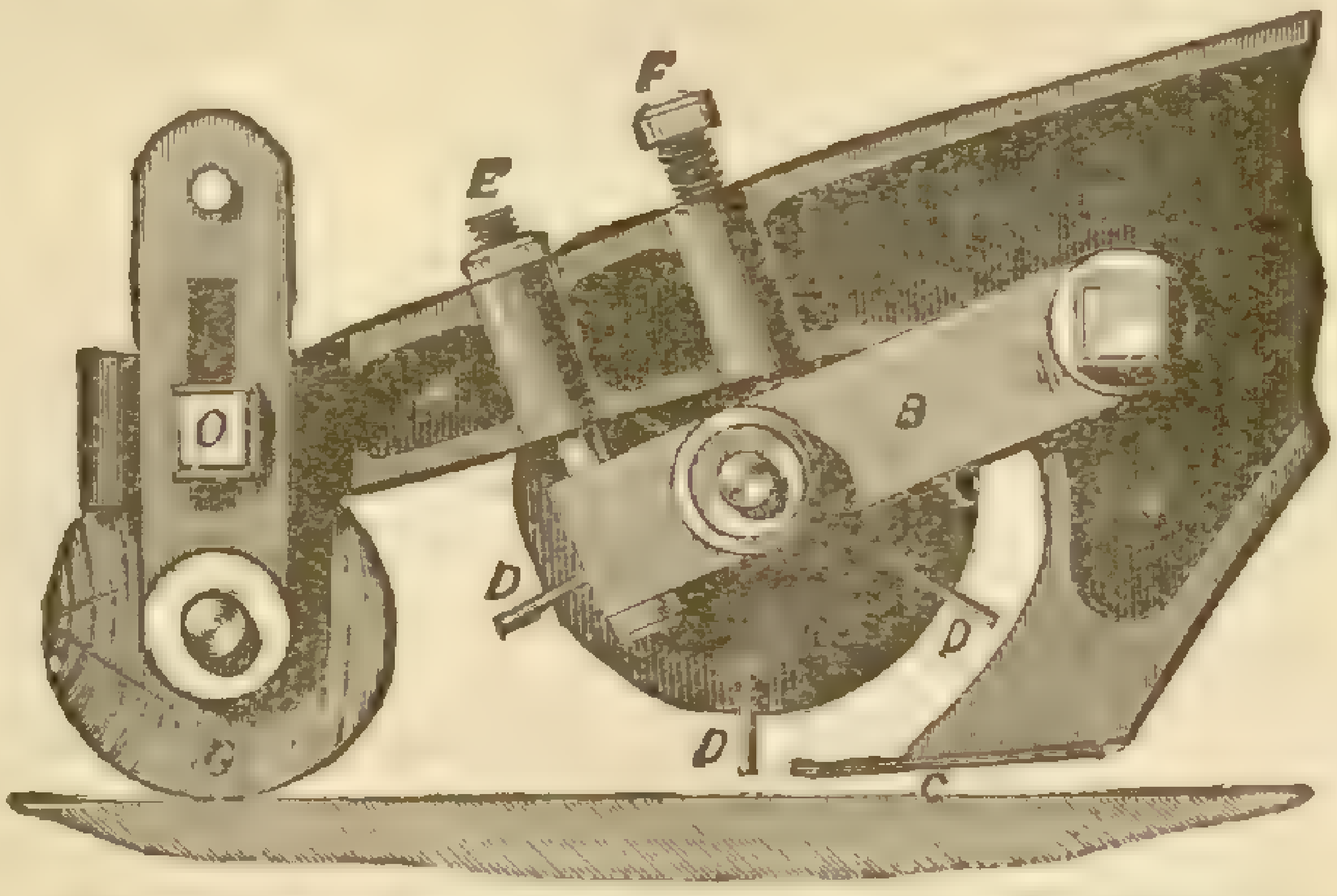
JERSEY.—From James Levesque, Esq., Grassdale.—The 18-inch Automaton Lawn Mower you sent here gives the highest satisfaction; and although in full work for two seasons, has cost nothing for repairs, and is now as good as when first bought.

IRELAND.—From W. P. Urquhart, Esq., M.P., Castle Pollard, Co. Westmeath.—I am happy to add my testimony, if it can be of any service to you, in favour of the efficiency of your Automaton Lawn Mower, one of which you supplied to me in 1869. It has been in constant use, has never got out of order, and has accomplished the task of keeping a lawn smooth which was not in a very promising condition.

RANSOMES, SIMS & HEAD, ORWELL WORKS, IPSWICH.

ENLARGED DRAWING OF THE

FRONT PART OF THE "AUTOMATON" LAWN MOWER.



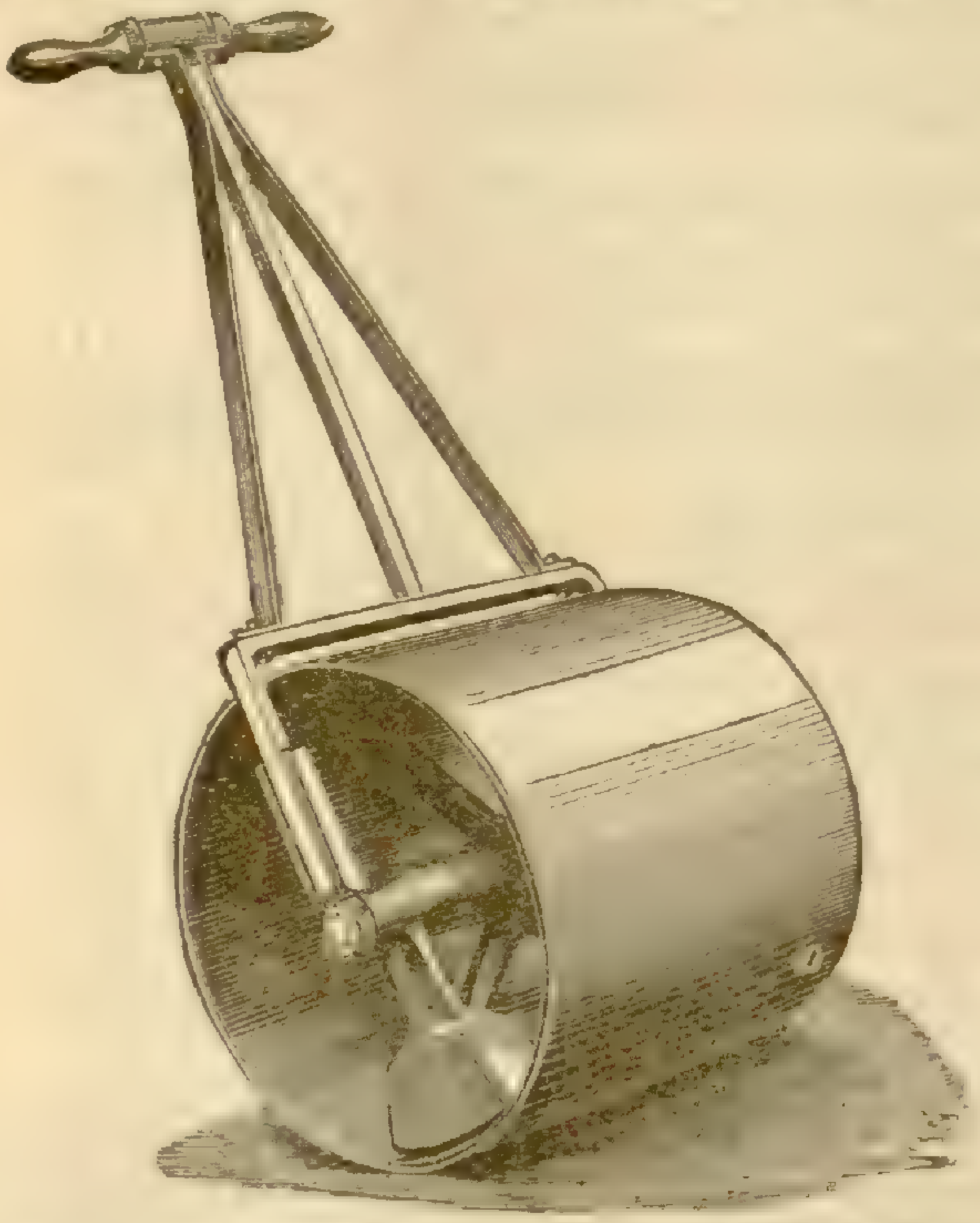
Showing mode of Adjusting the Cutters to the Ledger Blade, and regulating the cutting height from the ground.

B the adjustable arm which carries the revolving knives or cutters D D. C is the fixed "ledger" or cutting blade, against the front edge of which the knives D D act. E and F are adjusting screws for accurately regulating the revolving knives D D to the fixed ledger blade C. G are wooden rollers which support the front of the Machine and keep the knives and ledger blade just clear of the ground. These rollers are easily adjusted by screws O, so as to regulate the cutting height from the ground. The revolving knives D D should just press lightly against the fixed ledger blade C, and this degree of nicety can be easily and exactly adjusted by means of the screws E and F. If, for instance, the knives do not quite touch the ledger blade C, slacken the nut E a trifle, and tighten the screw F. If, on the contrary, the cutters press too hard upon the blade C, then slacken the screw F and tighten up the nut E. A leaf of a plant or shrub, or a slip of writing paper applied between the edges of the revolving knives D D and the edge of the ledger blade C, will show when they cut properly by producing a clean cut, on the knives being made to revolve, and no more pressure or closeness ought to be given than is sufficient to produce this effect. Care should be taken never to overstrain the set screws, but they should be tight enough to ensure their not becoming loose of themselves.

When the knives require sharpening, take off the side wheel cover, then screw the small iron handles (sent with the Machine) into the arm of the outside toothed wheel, and turn this wheel rapidly backwards, first taking care that the frame is supported on each side by a brick or block of wood placed below the bearings of the main rollers. This rapid turning of the knives in a contrary direction to that which they revolve when in use, will very soon sharpen both the knives and ledger blade, if at the same time oil is freely dropped upon them, and also some fine emery (nearly the finest made) carefully shaken upon the revolving knives. Adjust the knives upon the ledger blade delicately, as the process of grinding goes on.

Full Instructions for using, keeping in order, and adjusting the Automaton Lawn Mower sent with every Machine.

NEWLY DESIGNED GARDEN ROLLERS.



RANSOMES, SIMS & HEAD can recommend these Rollers with the greatest confidence. They are of solid construction, and the best workmanship, being designed rather for use than ornament. The bearing of the Roller is in the centre of the cylinder instead of at the ends, so that dirt is practically excluded.

These Rollers do not leave ribs in the grass or gravel, like the double rollers, and are much lower in price. As the axles do not project beyond the handles, the danger of injuring shrubs and barking trees is avoided.

PRICES.—16 in., 60/- 18 in., 70/- 20 in., 80/- 22 in., 90/- 24 in., 100/-

Including free delivery to the principal Railway Stations and Shipping Ports in England.

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TAB. 6042.

PRIMULA VERTICILLATA VAR. SINENSIS.

Native of Abyssinia.

Nat. Ord. PRIMULACEÆ.—Tribe PRIMULEÆ.

Genus PRIMULA, *Linn.;* (*Duby in DC. Prodr.*, vol. viii. p. 34).

PRIMULA (Sphondylia) *verticillata;* stramineo-farinosa, foliis irregulariter argute serratis, radicalibus rosulatis obovato-spathulatis -lanceolatisve acutis in petiolum late alatum angustatis, floralibus verticillatis sessilibus lanceolatis ovato-lanceolatis obovatisve acuminatis pedicellis longioribus, floribus numerosissimis erecto-patentibus, calycis campanulati lobis ovato-lanceolatis integerrimis v. irregulariter serratis, corollæ tubo angusto elongato calyce ter longiore, lobis obovatis suborbicularibus oblongisve emarginatis v. erosis.

PRIMULA verticillata, *Forsk. Flor. Ægypt.-Arab.*, p. 42; *Vahl. Symb.*, vol. i. p. 15, t. 5; *Duby in DC. Prodr.*, vol. viii. p. 35; *Jaub. and Spach, Ill. Pl. Orient.*, vol. v. t. 438; *Link. and Otto Abild.*, t. 51.

VAR. *sinensis;* bracteis inferioribus latioribus 3-neviis, calyce ad medium 5-fido, corollæ limbo fere pollicem lato lobis rotundatis emarginatis; *Mast. in Gard. Chron.*, 1870, p. 597; P. sinensis, *Hochst. in Schimp. Pl. Abyss., sect. ii. n.* 662; *Field and Gard. Sert. Plant.*, vol. i. t. 48; *Jaub. and Spach, Ill. Pl. Orient.*, vol. v. t. 440; P. Boveana, *A. Reich. Tent. Flor. Abyss.*, vol. ii. p. 15, *non. Dcsne.;* P. Courti. *Hort. Veitch.*

P. verticillata was originally discovered in the Arabian province of Yemen, on the margins of rivulets on Kierma, a calcareous mountain in north latitude 14½°—that is, towards the southern extremity of Arabia Felix. In his "Flora Ægyptiaco-Arabica," posthumously edited by Niebuhr, this mountain is described (p. xc.), as being higher than its neighbours, almost destitute of trees, but covered with crops of herbs and cereals, the *Holcus* excepted, which the peasants say is unable to withstand the cold of that elevation. This *Primula* was subsequently gathered under three forms in various parts of Arabia, and in Abyssinia, amongst which forms no constant differences can be detected. Of these the true plant of Forskahl has narrow involucral leaves, a calyx divided to below the middle into narrow lanceolate segments, and a corolla not one-third of an inch in diameter, with ovate truncate divisions. The second form is the *P. Boveana* of Decaisne (*P. verticillata*, Botanical Magazine, t. 2842), which differs from the type chiefly in the more obovate corolla-lobes, which are quite entire or obscurely crenate, and the irregularly toothed calyx divisions. It varies greatly in the size of the corolla and breadth and form of the involucral leaves, and is found near Muscat in Arabia, on Mount Saint Catherine in the Sinaitic Peninsula, and in the Tigre province of Abyssinia. The third is the present plant, which has uniformly a much broader corolla, with nearly orbicular emarginate lobes, and entire or sparingly toothed calyx-lobes.

Primula verticillata has been long cultivated in Europe, having been raised from seed brought, I believe, from the Sinaitic Peninsula; but the Abyssinian variety is of recent introduction into England by Messrs. Veitch. The specimen here figured flowered in the Royal Gardens in March of the present year; it grows freely on rockwork.

Descr. *Rootstock* as thick as the thumb, and several inches long. *Radical leaves* six to twelve inches long, obovate-spathulate, contracted into a more or less long and broad petiole, acute, irregularly acutely toothed, clothed with a lemon-coloured or almost white meal beneath. *Scape* a span high and upwards, mealy, with two whorls of flowers subtended each by four to six leafy bracts, or with the upper whorl reduced to an umbel. *Involucral leaves*, sessile, ovate-lanceolate, 3-nerved, one to two inches long, toothed like the other leaves. *Flowers* very numerous, pale yellow; pedicels slender, striate, erecto-patent, shorter than the involucre, furnished at the base with linear bracts. *Calyx* mealy, campanulate, cut to the middle into entire or toothed triangular-ovate lobes. *Corolla-tube* one inch long, limb nearly as much in diameter, lobes rounded, notched.—*J. D. H.*

Fig. 1, Calyx, style, and stigma:—*magnified.*

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Tab. 6043.

MENINIA TURGIDA.

Native of Cochin-China.

Nat. Ord. Acanthaceæ.—Tribe Asystasieæ.

New Genus, Meninia, *Fua*.

Gen. Char.—*Calyx* 5-fidus, laciniis acutis purpureis, æstivatione valvatis. *Corolla* ringeus, tubo in anconem flexo, ad faucem dilatato reticulato-venoso introrsum villoso, lobis æstivatione imbricatis uno vexillari. *Stamina* 2 fertilia (absque rudimentis sterilium), inclusa, ad tubi basin, inserta, antheræ oblongæ inferne subsagittatæ, loculis parallelis purpurascentibus, connectivo crasso papilloso subapiculato. *Discus* hypogynus 0. *Ovarium* 2-loculare, stylus stamina subæquans, stigmate obsolete 2-lobo; ovula in loculis 4. *Fructus* . . . . *Dcne. mss.*—Herba *glaberrima, sublignosa, febrifuga, amara, ramis obtuse tetragonis, ad nodos incrassatis et articulatis.* Folia *opposita, elliptico-lanceolata, obtuse acuminata, integerrima, breviter petiolata.* Flores *mediocres, in paniculam sessilem thyroideam terminalem densifloram dispositi, bracteate et bracteolate, albi roseo reticulato.*

Meninia *turgida*, Fua mss.

For the opportunity of figuring this very interesting plant, which is a celebrated febrifuge in its native country, I am indebted to my friend Professor Decaisne, who sent a living specimen of it from the Jardin des Plantes to Kew (where it flowered in April of the present year), and who has more recently supplied me with the generic character given above, and the following particulars :—

Meninia turgida was established by M. Fua, who has studied carefully the organogeny of *Acanthaceæ*, but who has hitherto published nothing on the subject. The flowers were analysed by M. Decaisne in 1869, and found to be absolutely diandrous, without a trace of arrested stamens, so that it cannot be referred either to *Asystasia* or to *Thyrsacanthus*. The plant itself is remarkable for its febrifuge properties, which have been investigated by Mr. Weber; it is called Thuong-son by the natives.

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Descr. An erect herb, woody below, quite glabrous. *Branches* strict, green, articulate; internodes obtusely 4-angled, swollen at the nodes. *Leaves* opposite, four to seven inches long, shortly petioled, elliptic-lanceolate, obtusely acuminate, quite entire, bright green above, pale beneath. *Inflorescence* a terminal contracted sessile erect obtuse dense-flowered thyrsoid panicle; lower bracts leafy, upper small, hidden amongst the flowers; bracteoles two, ovate-lanceolate, acute, exceeding the calyx, much shorter than the corolla; pedicels very short, angled. *Calyx* of five subequal subulate teeth, brownish-purple, much shorter than the corolla-tube. *Corolla-tube* stout, geniculately inflexed below the middle, rather turgid at the very base, white, the throat yellow within the lower lip; throat inflated, villous within; limb of five spreading and recurved ovate subacute lobes, the lower broadest, all white and reticulated with pink nerves. *Stamens* two, with no traces of rudimentary ones, inserted in the throat opposite the lower lip; filaments incurved; anthers, linear-oblong, apiculate, papillose on the back, cells connate throughout their length. *Ovary* 2-celled, cells 4-ovuled; style slender, stigma minutely 2-fid.—*J. D. H.*

Fig. 1, Flower; 2, corolla laid open; 3, anther; 4, flower with corolla removed; 5, vertical and transverse sections of ovary:—*all magnified.*

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TAB. 6044.

CRASSULA PROFUSA.

Native of South Africa.

Nat. Ord. CRASSULACEÆ.

Genus CRASSULA, *Linn.*; (*Benth. and Hook. f. Gen. Pl.*, vol. i. p. 657).

CRASSULA (Perfilata) *profusa*; glaberrima, vix glauca, profuse ramosa, ramis dependentibus et repentibus teretibus, foliis ima basi connatis orbiculari-ovatis acutis carnosis dorso convexis, margine integerrimo badio-limbato superne serie intramarginali punctorum ornato, cymis breviter pedunculatis capitatis, calycis segmentis linearibus, petalis ovatis acutis albis, stylis divergentibus, glandulis hypogynis brevissimis.

A free-flowering and remarkably ramous species of *Crassula*, sent from the Graaf Reinett district of the Cape Colony by Harry Bolus, Esq., who has contributed many new and curious plants to both the Gardens and Herbarium at Kew. It approaches the *C. perfossa*, Lam., and *C. perforata*, Linn., but differs from both in habit, in the only slightly connate leaves, and longer narrow calyx lobes; it is still nearer *C. marginata*, Ait., with which it further agrees in habit, but the leaves are not broadly connate, and are green (not purple) beneath. The structure of the leaf is very curious. The margin, which is quite entire, is edged with a narrow band of chestnut-brown, within which is a series of orbicular slightly convex punctiform disks. These disks, when highly magnified, are found to consist of a very dense cellular tissue, that terminates downwards in a conical form, and communicates with the peripheral ends of the nerves, in the loose parenchymatous substance of the leaf. The surface of the disk is studded with excessively minute stomata, of a different form from the other stomata on either surface of the leaf, the guard-cells of these stomata further contain on their outer edge a row of minute chlorophyle granules, giving them a most beautiful appearance. The same disposition of these disks occur in *C. lactea* and *C. marginata*, but not in *C. perforata*; their terminating the

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ultimate branches of the nerves indicates their performing an important function in the nutrition of the plant.

C. prolifera was raised from seed received in 1871 from Mr. Bolus, and now forms a profusely flowering mass of branches and leaves, two feet in diameter; it flowered from March to June of the present year.

Descr. Quite glabrous, excessively branched; branches pendulous and creeping, one to two feet long, cylindric. *Leaves* sessile, half to three quarters of an inch long, orbicular-cordate, slightly connate at the base, acute or cuspidate, very thick and fleshy, slightly convex above, more so beneath, pale green on both surfaces, hardly glaucous, margins quite entire and glabrous, with a narrow chestnut-coloured border on the upper surface, within which is a series of minute points. *Flowers* white, in capitate peduncled cymes, which are about one inch in diameter, and subtended by two small orbicular fleshy bracts; pedicels a quarter to half inch long, turbinate at the apex. *Calyx* of five linear acute segments half as long as the petals. *Corolla* one-third of an inch in diameter, of five ovate acuminate free petals, tinged with pink at the back. *Stamens* hardly exceeding the styles; anthers yellow. *Hypogynous glands* very short and broad. *Carpels* five, ovoid, abruptly terminated by diverging styles with capitate stigmas.—*J. D. H.*

Fig. 1, Bud; 2, leaves; 3, flower expanded; 4, stamen; 5, ovaries and hypogynous glands:—*all magnified.*

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TAB. 6045.

RHODODENDRON MALAYANUM.

Native of the Malayan Archipelago.

Nat. Ord. ERICEÆ.—Tribe RHODOREÆ.

Genus RHODODENDRON, *Linn.*; (*Maximovicz in Mem. Acad. Imp. Sc. Petersb.*, vol. xvi. No. 9, p. 13).

RHODODENDRON *malayanum;* foliis breviter petiolatis ellipticis utrinque acutis supra luride viridibus subtus badiis una-cum petiolis pedunculis calycibus ovariisque lepidotis, umbellis terminalibus 3-8-floris, pedicellis brevibus, calyce minute 5-dentato, corolla hypocraterimorpha sanguineo-rubra, tubo elongato sulcato lente curvo basi gibbo, limbi subæqualis lobis parvis rotundatis, staminibus 10, antheris vix exsertis, ovario elongato 5-loculari, stigmate obtuso minute 5-lobo incluso.

RHODODENDRON malayanum, *Jack. Mal. Misc.*, No. 7, p. 17, *ex Hook. Journ. Bot.*, vol. i. p. 369; *DC. Prodr.*, vol. vii. p. 725; *Miquel Fl. Ind. Bat.*, vol. ii. p. 1059.

R. tubiflorum, *DC. l.c.; Miquel, l.c. et in Ann. Mus. Lugd. Bat.*, vol. i. p. 45, t. ii. A; Vireya tubiflora, *Blum. Bijd.*, p. 855.

Dr. William Jack, of the late East India Company's service, a very able botanist and author of the "Malayan Miscellanies," was the first to make known this fine plant (in about 1823), which he discovered on the summit of Gunong Bunko, a remarkably insulated mountain, commonly called by Europeans the Sugar-loaf, in the interior of Bencoolen, Sumatra. Dr. Jack observes of this mountain that, though estimated at only 3000 feet in height, the character of its vegetation is decidedly alpine, a fact which he attributes to the form and consequent exposure of its sharp conical peak. *Rhododendron malayanum* has since been gathered repeatedly on Mount Ophir, Malacca, at an altitude of 4000 feet. It is clearly the same as the Javanese *R. tubiflorum;* and the Celebes Island *R. celebicum* differs only in the paler under-surface of the leaves. The specimen here figured was obligingly communicated by Messrs. Rollisson, of Tooting, who received

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it, through their collectors, from Java. It was originally introduced by Lobb when travelling for the elder Veitch in 1854, and was said to come from Borneo, where Lobb was collecting; but as that indefatigable collector had already visited Mount Ophir, from whence he had sent excellent dried specimens, now in the Hookerian Herbarium, I suspect that the Bornean habitat is a mistake.

This species is evidently most closely allied in flowers to *R. jasminiflorum*, Hook. (Tab. nost. 4524), also a native of Mount Ophir; and in foliage to the Himalayan *R. blandfordiæflorum*, Hook. (Tab. nost. 4930).

Descr. A large shrub or small tree; branchlets red-brown, and, as well as the leaves beneath, petioles, pedicels, calyx, ovary (and corolla sparingly), clothed with red-brown lepidote scales. *Leaves* three to four inches long, elliptic or elliptic-lanceolate, acute at both ends, coriaceous, narrowed into a petiole one-third to two-thirds of an inch long, dark green above, red-brown beneath. *Flowers* in terminal few-flowered umbels, nodding, three-quarters of an inch long; peduncles short, curved. *Calyx* minute, 5-toothed. *Corolla* dull scarlet; tube three-quarters of an inch long, slightly curved, grooved, gibbous at the base; limb flat, horizontal, one-third to half an inch across; lobes orbicular. *Stamens* ten; anthers short, small, hardly exserted. *Ovary* slender, 5-celled, clothed with scales; style slender; stigma minute, 5-lobed.—*J. D. H.*

Fig. 1, Stamen; 2, calyx and ovary; 3, transverse section of ditto:—*all magnified.*

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TAB. 6046.

BORONIA MEGASTIGMA.

Native of S.W. Australia.

Nat. Ord. RUTACEÆ.—Tribe BORONIEÆ.

Genus BORONIA, *Sm.; (Benth. and Hook. f. Gen. Pl.*, vol. i. p. 291).

BORONIA *megastigma;* fere glabra, ramulis gracillimis virgatis, foliolis 3-5 anguste linearibus obtusis rigidis, pedunculis axillaribus 1-floris, pedicellis sub flore incrassatis, sepalis parvis obtusis, petalis fere orbiculatis concavis late imbricatis fusco-purpureis intus flavidis, staminibus alternatim valde inæqualibus antheris majorum purpureis cassis stigma attingentibus, antheris minorum minimis flavis polleniferis substigma reconditis, stigmate sessili magno umbonato 4-lobo.

BORONIA megastigma, *Nees in Plant. Preiss.*, vol. ii. p. 227; *F. Muell. Fragm.*, vol. ii. p. 97; *Benth. Flor. Austral.*, vol. i. p. 315.
B. tristis, *Turcz. in Bull. Mosc.* 1852, *pars* 2, p. 162.

A native of the districts around King George's Sound, where this curious plant is well known to the settlers for the delicious fragrance of its flowers, which renders it a most desirable object for cultivation. It was introduced into Kew by seed originally received from Baron von Mueller, and susequently living plants were presented by M. Thozet. It is also remarkable for its slender habit, spare foliage, the singular colour and structure of its flowers, which are produced in great abundance; for the very short stamens, of which the four opposite the sepals are larger, with purple anthers destitute of pollen, and the four alternate ones are minute, hidden under the very large 4-lobed stigma, yellow and polleniferous. The somewhat aromatic fragrance of the flowers resembles nothing known to me; it is most delicious; and though not overpowering, soon fills a large room; and should it be capable of being obtained as a perfume, I may safely predict its being in great request. In these respects,

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of delicacy of odour accompanying a singular brown-purple colour, it resembles the *Tinnæa Æthiopica* of Tropical Africa (Tab. nost. 5637); and like the Tinnæa, the Boronia is very easy of cultivation, if treated like a Heath in an ordinary greenhouse.

Descr. A very slender shrub, two feet high, with twiggy erect branches, and spreading opposite branchlets. *Leaves* very sparse, one-third to two-thirds of an inch long, sessile, the upper with one pair of pinnules besides the terminal, the lower with two pairs; pinnules narrow-linear, obtuse, glabrous, or with a few scattered hairs. *Flowers* very copiously produced, solitary in the axils of the upper leaves of the branchlets, subglobose-campanulate, one-half inch in diameter, shortly peduncled, drooping; peduncle one-half inch long, with two connate bracteoles above the middle. *Sepals* very small, subacute, gibbous at the back towards the apex. *Petals* nearly orbicular, concave, broadly imbricate, maroon-purple outside, greenish-yellow within. *Stamens* eight, very small, four sepaline with purple empty anthers on a level with the stigma, four petaline very minute, with four polleniferous yellow anthers concealed under the stigma. *Stigma* very large, sessile, umbonate, 4-lobed.—*J. D. H.*

Fig. 1, Leaf; 2, flower; 3, the same with the petals removed; 4, transverse section of ovary:—*all magnified.*

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TAB. 6047.

OMPHALODES LUCILIÆ.

Native of Asia Minor.

Nat. Ord. BORAGINEÆ.—Tribe CYNOGLOSSEÆ.

Genus OMPHALODES, *Tourn.*; (*DC. Prodr.*, vol. x. p. 158).

OMPHALODES *Luciliæ*; perennis, glaberrima, caulibus e rhizomate plurimis decumbentibus, foliis radicalibus longe petiolatis ellipticis oblongis ovatisve obtusis acutis v. mucronulatis, superne remote et minute pustulatis caulinis sessilibus, pedicellis gracilibus folia floralia longe superantibus demum arcuato-recurvis, sepalis ovato-oblongis pedicello multo brevioribus, corolla rotata calyce quadruplo ampliore, nuculis margine membranaceo integro lævi.

OMPHALODES Luciliæ; *Boiss. Diagn.*, No. iv. p. 41; *Alph. DC. in DC. Prodr.*, vol. x. p. 162; *Jaubert and Spach, Ill. Plant. Orient.*, vol. iv. t. 365.

This beautiful plant has hitherto been found only in two localities, which are very distant from one another, in Asia Minor—namely, Mount Sypilus, near Manesis (the ancient Magnesia, north-east of Smyrna), where it was discovered by Aucher Eloi; and in the Eastern Taurus Mountains of Bulgar dagh, in the province of Cilicia (now Itschili), adjoining the Gulf of Scanderoon. In both places it inhabits considerable altitudes, attaining 8000 feet. It is decidedly the most beautiful species of the genus, and is well adapted for rockwork cultivation, remaining in flower for a considerable time in cool weather, and presenting all shades of colour in the corolla, from a pale pink-purple to azure. The specimen here figured was presented to the Royal Gardens by James Atkins, Esq., of Painswick, and which flowered profusely for a second time after arrival. The flowers are very much larger than either in the native specimen or in the figure cited in the fine work of Jaubert and Spach; and I do not find any trace of the serratures of the sepals which are there represented, and which are described as cilia on the margins of the sepals.

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Descr. Glabrous. *Rootstock* long, perpendicular, its summit clothed with the withered bases of the petioles. *Radical leaves* long-petioled; blade one to two inches long, elliptic-ovate or oblong, acute obtuse or mucronate, narrowed into a petiole one to three inches long, above marked with faint distant pustules, beneath quite smooth; nerves very obscure; cauline smaller, sessile. *Flowering-branches* four to eight inches long, trailing, remotely leafy; cymes 6–8-flowered, flowers distant; pedicels half to one and a half inches long, the lower subtended by leafy bracts, spreading, recurved in fruit. *Calyx* campanulate, with five oblong-ovate acute spreading lobes. *Corolla* one half to one inch in diameter, quite rotate, pale pink-purple at first, then azure; tube very short, inflated; limb flat, five-lobed to the middle; lobes rounded; mouth nearly closed by five protuberances opposite the segments. *Stamens* included, filaments very short, subulate; anthers ovoid. *Nucules* trigonous, with narrow margins.—*J. D. H.*

Fig. 1, Corolla laid open; 2, flower with the corolla removed:—*magnified.*

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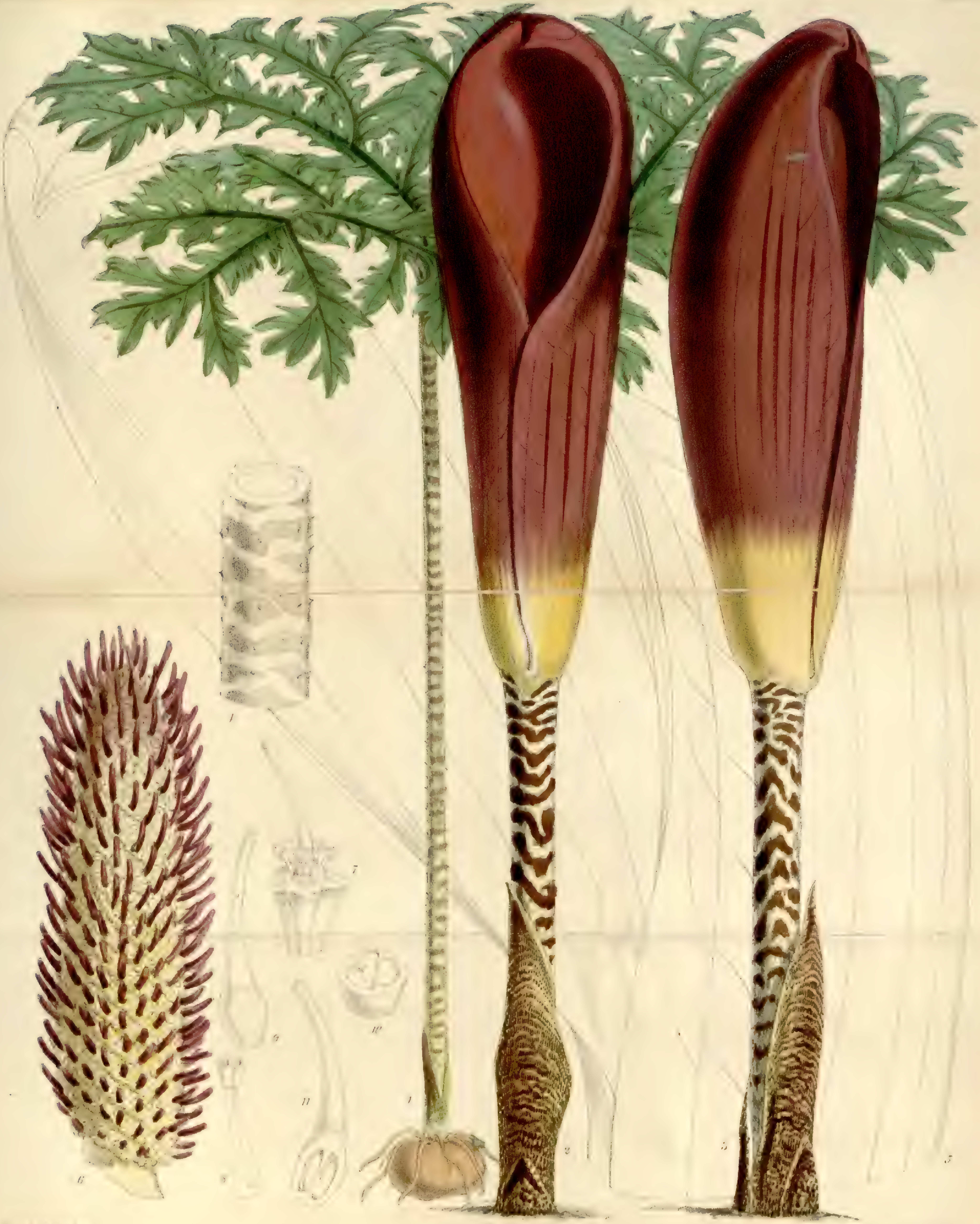
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TAB. 6048.

GODWINIA GIGAS.

Native of Nicaragua.

Nat. Ord. AROIDEÆ.—Tribe DRACONTIEÆ.

Genus GODWINIA, *Seemann*; (*Journ. Bot.*, vol. vii. p. 278 and 315).

GODWINIA *Gigas*; *Seem. l.c.* t. 96 et 97. *Gard. Chron.* 1872, p. 1720, et 1873, p. 73.

Nothing smaller than the elephant folio size can do justice to an illustration of the wonderful plant of which a reduced figure and analysis is here given from the specimen which flowered in Mr. Bull's nursery in December last, and which was repeatedly exhibited at Horticultural Shows in London, where, as well as in Mr. Bull's stove, its curious structure attracted the attention of botanists, and its stature, almost grotesque form, habit and colour, that of horticulturists and amateurs.

The genus to which *Godwinia* belongs is, as correctly indicated in the Journal of Botany, the essentially tropical American tribe of *Dracontieæ*, and has nothing to do with the gigantic Indian *Amorphophalli*, which it represents in the New World, and which it resembles so much in stature and habit; nor with the even more stately *Conophallus* of Sierra Leone. It is a native of the Chontales mountains of Nicaragua, where it was discovered by Dr. Seemann in 1869, growing amongst brushwood near rivulets.

In its native state the tuberous root of *Godwinia* attains a circumference of two feet two inches, and a weight of 90–92 oz. The petiole reaches ten feet in height, and has a metallic lustre and mottled surface resembling a snake standing erect, and bears a blade three feet eight inches long. The peduncle is shorter than the petiole, about five feet and a half, and the spathe alone is two feet long. The plant grows with great rapidity, and emits a peculiar odour. Dr. Seemann named this prodigy after Mr. George Godwin, F.R.S., the eminent

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architect, a gentleman of varied attainments, in especial recognition of his philanthropic efforts to spread a love of window-gardening and other pursuits amongst the humbler classes of London.

Mr. Fitches' drawing was made in Mr. Bull's nursery in December, 1872.

Descr. *Root* as large as a man's head, giving off stout spreading fibres. *Leaf* solitary; blade nine to ten feet in circumference, nearly circular in outline, trichotomously divided, the ultimate divisions pinnatifid and dichotomous; segments confluent, subacute, deep green; petiole attaining ten feet high, as thick as the arm, remotely muricate, yellow, mottled and striped with purple in transverse bars. *Spathe* two feet long, narrow, erect, boat-shaped, hooded at the top, thick and leathery, maroon-brown within and without, opaque; base dirty yellow and orange red, convolute, embracing the spadix, upper part open, but hardly gaping. *Spadix* much shorter than the spathe, cylindric, obtuse, shortly peduncled, quite free from the spathe, covered throughout with flowers. *Perianth* dull yellow, of six elongate cuneate truncate segments. *Stamens* six to eight in flowers here drawn, (12-biseriate, *Trimen, in Seem. Journ.*) filaments flattened, subulate; anthers exserted, small, 2-celled, cells each opening by a terminal pore. *Ovary* flagon-shaped, 3-celled, gradually contracted into a long stout purple style which much exceeds the perianth, and is truncate and stigmatiferous at the tip: cells 1-ovuled, ovule attached by a broad surface to the septum.—*J. D. H.*

Fig. 1, *Reduced* figure of leaf; 2 and 3, of scape and spathe; 4, portion of scape; 5, do. of spathe; 6, spadix:—*all of nat. size*; 7, flower; 8, stamen; 9, ovary; 10, transverse, and 11, longitudinal, section of do.:—*all magnified.*

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TAB. 6049.

SONERILA BENSONI.

Native of the Madras Peninsula.

Nat. Ord. MELASTOMACEÆ—Tribe SONERILEÆ.

Genus SONERILA, *Roxb.*; (*Benth. and Hook. f. Gen. Pl.*, vol. i. p. 753).

SONERILA *Bensoni*; herbacea, fere glaberrima, ramosa, caule erecto ramisque crassis obscure 4-gonis, foliis petiolatis ovatis acutis serratis sub 7-nerviis, cymis multifloris, pedunculo valido, calycis tubo ovoideo 6-costato scaberulo, limbi lobis 3-parvis rotundatis subæqualibus, petalis late ovato-orbiculatis acutis dorso carinatis, carina ciliolata, staminibus 6, antheris acuminato-rostratis.

Colonel Benson procured seeds of this plant from the Western Ghauts of Malabar, I believe, which he transmitted to Messrs. Veitch, who forwarded the specimen here figured to Kew. It so closely resembles the *S. elegans*, Wight (Tab. nost. 4978), that I am in much doubt as to the propriety of keeping it distinct, notwithstanding its remarkable character of hexandrous flowers, a condition which obtains in only two other species of this large genus, which numbers upwards of fifty species, all of them Indian or Malayan. From *S. elegans* it further differs in the smaller and more shortly-petioled leaves, which are glabrous, in the 6-ribbed calyx-tube, and much smaller flowers. From *S. speciosa*, Zenk. (Tab. nost. 5026), a very similar plant, and from the same region, it also differs in the hexandrous flower, small petals, their paler colour, and the ribbed calyx-tube.

The *Sonerilas* are beautiful plants, inhabitants of humid, cool, shady mountain regions of India and the Malayan Islands, often growing on mossy rocks and tree trunks. Though easily raised and flowered, they have hitherto proved to be very difficult of continued cultivation, partly no doubt from being kept in too hot and damp a condition, but no less to their soft and succulent stems, which rapidly decay in

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the winter months, when their vitality is checked by cold or other causes.

Descr. A succulent branching herb, nearly glabrous, except the scape and calyx. *Stem* and *branches* as stout as a goosequill, obscurely 4-angled. *Leaves* rather succulent, two to two and a half inches long, ovate, acute, serrate, 5-nerved, shining green shot with brown-purple above, rose-purple beneath; petiole about half as long as the blade. *Peduncles* two to three inches long, bright red, solitary, terminal, erect, slightly strigose above. *Cymes* about 6-flowered. *Flowers* one inch in diameter, shortly pedicelled. *Calyx-tube* ovoid, 6-ribbed, scaberulous; limb cupular, 3-lobed, lobes subequal, rounded. *Petals* almost orbicular, acute, bright purple. *Stamens* six; anthers ovate, gradually produced into an obtuse beak. *Ovary* 3-celled, its apex produced within the calyx-tube, conical and 6-toothed. *Style* declinate.—*J. D. H.*

Fig. 1, Flower with the petals removed; 2, petal; 3, stamens; 4, ovary with part of calyx-tube removed:—*all magnified.*

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TAB. 6050.

DENDROBIUM LITUIFLORUM.

Native of Tenasserim?

Nat. Ord. ORCHIDEÆ.—Tribe DENDROBIEÆ.

Genus DENDROBIUM, *Swartz*; (*Lindl. Gen. et Sp. Orchid.*, p. 74).

DENDROBIUM *lituiflorum*; caulibus fasciculatis gracilibus elongatis dependentibus arundinaceis basi tuberosis, floribus ad nodos 1-5, sepalis patentibus oblongo-lanceolatis obtusis v. acutis petalisque latioribus ovato-oblongis læte purpureis, labelli lituiformis ungue convoluto incurvo, lamina orbiculari concava disco intense purpurea, limbo lato stramineo velutino margine anguste lilacino integerrimo.

DENDROBIUM lituiflorum, *Lindl. in Gard. Chron.* (1856, May), p. 185.

D. Hanburyanum, *Reichb. f. in Bonplandia*, vol. iv. p. 329 (Oct. 1856).

Dr. Lindley, the author of this species, observes that it belongs to the *D. nobile* group, but that besides its different habit, it is a much handsomer plant, with a longer lip and very acute petals and sepals. Its native country was unknown at the date of its publication, and is not now certain; but judging from the number of forms allied to *D. nobile* that have lately been received from Rangoon, Moulmaine, and the Tenasserim provinces, it is most probable that it was imported from thence. Very shortly after Dr. Lindley had published it, it was described as *D. Hanburyanum* by Prof. Reichenbach, and from the same source—Mr. Hanbury's garden. Our specimen flowered in the Royal Gardens in April of the present year.

The specific name is derived from lituus, a kind of curved trumpet or clarion, in allusion to the form of the lip.

DESCR. *Stems* fascicled, eighteen inches long, as thick as a goosequill, reed-like, yellow, internodes about an inch long, the lowest tuberous at the base; sheaths short, appressed, truncate, striate. *Leaves* not seen. *Flowers* solitary, or

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2–5-fascicled on a short peduncle at the nodes, two inches in diameter; bracts short; pedicels and ovary very slender, together one inch long. *Sepals* spreading and recurved, oblong-lanceolate, acute or apiculate, bright purple, reticulated. *Petals* spreading, ovate-oblong, much broader than the sepals, of the same colour, except towards the base, where they are nearly white. *Lip* one and a half inch long; curved like a trumpet, with the mouth upwards. *Claw* convolute, white with deep purple transverse stripes. *Limb* expanded, orbicular, concave, with recurved margins. *Disk* of a very deep violet-purple colour, this is surrounded by a broad faint yellow velvety band, which is edged with purple that extends to the quite entire margin of the limb.—*J. D. H.*

Fig. 1, Lip:—*magnified.*

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TAB. 6051.

SILENE HOOKERI.

Native of California.

Nat. Ord. CARYOPHYLLEÆ.—Tribe SILENEÆ.

Genus SILENE, *Linn.*; (*Benth. and Hook. f. Gen. Pl.*, vol. i. p. 147).

SILENE *Hookeri*; perennis, tota tomentoso-pubescens, caulibus e radici perennate plurimis decumbentibus foliosis, foliis anguste elliptico-lanceolatis v. oblanceolatis acutis enerviis in petiolum latum angustatis, radicalibus in plantis junioribus spathulatis, floribus solitariis v. in axillis subcymosis amplis pedicellatis rarius in pedunculos 2-floros dispositis, calyce pollicari anguste oblongo demum turgido non viscoso 10-nervio, limbi brevis lobis triangulari-ovatis, petalis pallide roseis ungue basi ciliato superne in laminam cuneatam 4-6-fidam sensim dilatato facie 2-carinato, carinis in dentes productis, limbi lobis linearibus æqualibus v. variis acutis v. obtusis, staminibus petalinis ungue multo brevioribus sepalinis filamentis filiformibus elongatis, ovarii stipite glaberrimo.

SILENE Hookeri, *Nuttall in Torr. and Gray Fl. N. Am.*, vol. i. p. 193.
S. Bolanderi, *A. Gray in Proc. Amer. Acad.*, vol. vii. p. 330 (March, 1868).

This curious species of *Silene* was discovered some forty years ago in woods of the Wahlamet, in Oregon, and has been gathered repeatedly since by various collectors in different parts of Oregon and California; most recently by Prof. Bolander, in wooded hillsides in the Plumas country. It is quite unlike any other cultivated in Europe, and especially remarkable from the great size of the flowers in comparison with the rest of the plant. Nuttall, the founder of the species, describes the petals as white, but they are of a pale rose colour in our specimens. In Gray's description and our specimens of *S. Bolanderi* these petaline lobes vary exceedingly in number, length, and breadth, the outer on either side being sometimes reduced to mere teeth.

Silene Hookeri is well adapted for rockwork cultivation; it was introduced by Professor Bolander, who sent seeds to Mr. Thompson of Ipswich, who forwarded living specimens to Kew, which flowered in May of the present year. The flowers are very fugacious.

Descr. Whole plant softly pubescent, subtomentose or almost woolly. *Stems* many from a perpendicular root, which in old plants is stout and woody, decumbent, six to ten inches long, slender. *Leaves* two to three inches long, the lower elliptic-spathulate, narrowed into long petioles, the remainder elliptic-lanceolate acute or acuminate, all uniformly pubescent on both surfaces, midrib and nerves very obscure. *Flowers* two to two and a half inches in diameter, solitary in the leaf-axils, or sometimes obscurely arranged in terminal or axillary few-flowered cymes; pedicels very short. *Calyx* about one inch long, at first narrow, soon turgid, 10-nerved, veins obscure, teeth short, erect, green, with narrow membranous edges. *Petals* twice as long as the calyx, pale pink; claw ciliate, gradually dilating into the broad limb, which is 4-cleft; lobes very variable, narrow or broad, equal, or the outer smaller or reduced to teeth, acute or obtuse; there are two parallel white ridges on the claw which terminate in white teeth at the blade. *Gynophore* columnar, nearly glabrous. *Stamens* very unequal, five petaline very short; five sepaline with slender filaments. *Ovary* glabrous, ovoid; styles slender.—*J. D. H.*

Fig. 1, Petal and petaline stamen; 2, gynophore, very young ovary, and long stamens; 3, very young ovary and gynophore; 4, advanced calyx:—*all magnified.*

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TAB. 6052.

CINCHONA CALISAYA, VAR. JOSEPHIANA.

Native of Bolivia and Peru.

Nat. Ord. RUBIACEÆ.—Tribe CINCHONEÆ.

Genus CINCHONA, *Linn.*; (*Benth. and Hook. f. Gen. Pl.*, vol. ii. p. 32).

CINCHONA *Calisaya*; foliis oblongis v. lanceolato-obovatis obtusis basi attenuatis rarius utrinque acutis glabratis nitidis v. subtus pubescentibus in axillis venarum scrobiculatis, filamentis quam dimidia anthera plerumque brevioribus, capsula ovata florem longitudine æquante, seminibus margine crebre fimbriato-denticulatis (*Weddell, Hist. Nat. Quinq.*, 30).

Var. *β. Josephiana*; frutex pratensis foliis oblongo-v. ovato-lanceolatis acutiusculis obtusisve utrinque glaberrimis rigidulis scrobiculatis v. escrobiculatis capsula vulgo maore.

C. Calisaya *var.* Josephiana, *Weddell, Hist. Nat. Quinq.*, p. 31. *Notes sur les Quinquinia*, 18 et 54. *Gust. Planch. des Quinq.*, p. 71. *Triana, Nouv. Etudes sur les Quinq.*, p. 64.

This very distinct looking form of *Cinchona Calisaya* flowered in October, 1872, with Mr. Howard, who informs me that he received the plant from Kew some five or six years previously, but that he has kept no record of the locality whence it was originally obtained. It is obviously one of the plants brought by Mr. Pearce in 1866, and of which there are specimens from himself in the Kew herbarium, marked as an evergreen shrub, six to ten feet high, gathered in flower at Moro, altitude 5–6000 feet, January, 1866, several Ward's cases of which were forwarded from Kew to India in the same and following years. Mr. Howard at first supposed it to be the *C. micrantha*, var. *Calisayoides* (which is inseparable by botanical characters from *C. micrantha* var. *oblongifolia*, of Weddell), and it is indeed to all appearance intermediate between *C. Calisaya* and *C. micrantha*. Subsequently, after a correspondence with Dr. Weddell, he agreed with that learned author in considering it referable to *C. Calisaya* var. *Josephiana*. The "Itzhu cascarilla" of the Peruvians, a plant which grows very abundantly in the same regions as *C.*

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Calisaya (namely, Bolivia and Southern Peru), but in open meadows, not in woods, to which no doubt the comparatively coriaceous foliage is attributable, and to which it owes its native name. Weddell indeed regards it as a subspecies, and places under it three varieties, a. *glabra*, b. *pubescens*, and c. *discolor* (*C. Boliviana*, Wedd. in part), to the first of which our figure belongs, though the leaves are longer and narrower than the description would imply.

Owing to its growing out of the forest, the seeds of this form appear to be much easier procured than those of the true *Calisaya*, which is unfortunate, as Mr. Howard pronounces the bark to be of inferior quality, a fact which he is disposed to connect with the colour of the flowers, which are greenish white below, and brilliant white above. *C. micrantha* var. *virdiflora*, affording another case in point. The colour of the flowers should, however, according to Dr. Weddell, be pink, and Pearce remarks that the flowers were pink in his native specimens. They are very fragrant; the odour is described by Mr. Howard as between cloves and jessamine. The name *Josephiana* was given in honour of Joseph de Jussieu, who described it in his MSS.

Descr. A bush or a small shrubby tree. *Leaves* five to ten inches long, by one and a half to three broad, elliptic-oblong or narrowly oblong or obovate-lanceolate, obtuse or subacute, coriaceous, lucid, dark green, quite glabrous on both surfaces, except the nerve-axils beneath. *Petiole* a half to three-quarters of an inch long. *Flowers* two-thirds of an inch long, in terminal erect panicles. *Calyx* small, green, pubescent. *Corolla-tube* tomentose, not split laterally, dull green below, clear white above (in cultivated specimens), as are the lobes. *Stamens* of male flowers with the filaments about half the length of the anthers; of the female very short indeed. *Capsule* equalling the flower in length, turgid. *Seeds* with a closely fimbriate wing.—*J. D. H.*

Fig. 1, Flower; 2, the same with the corolla laid open:—*both magnified.*

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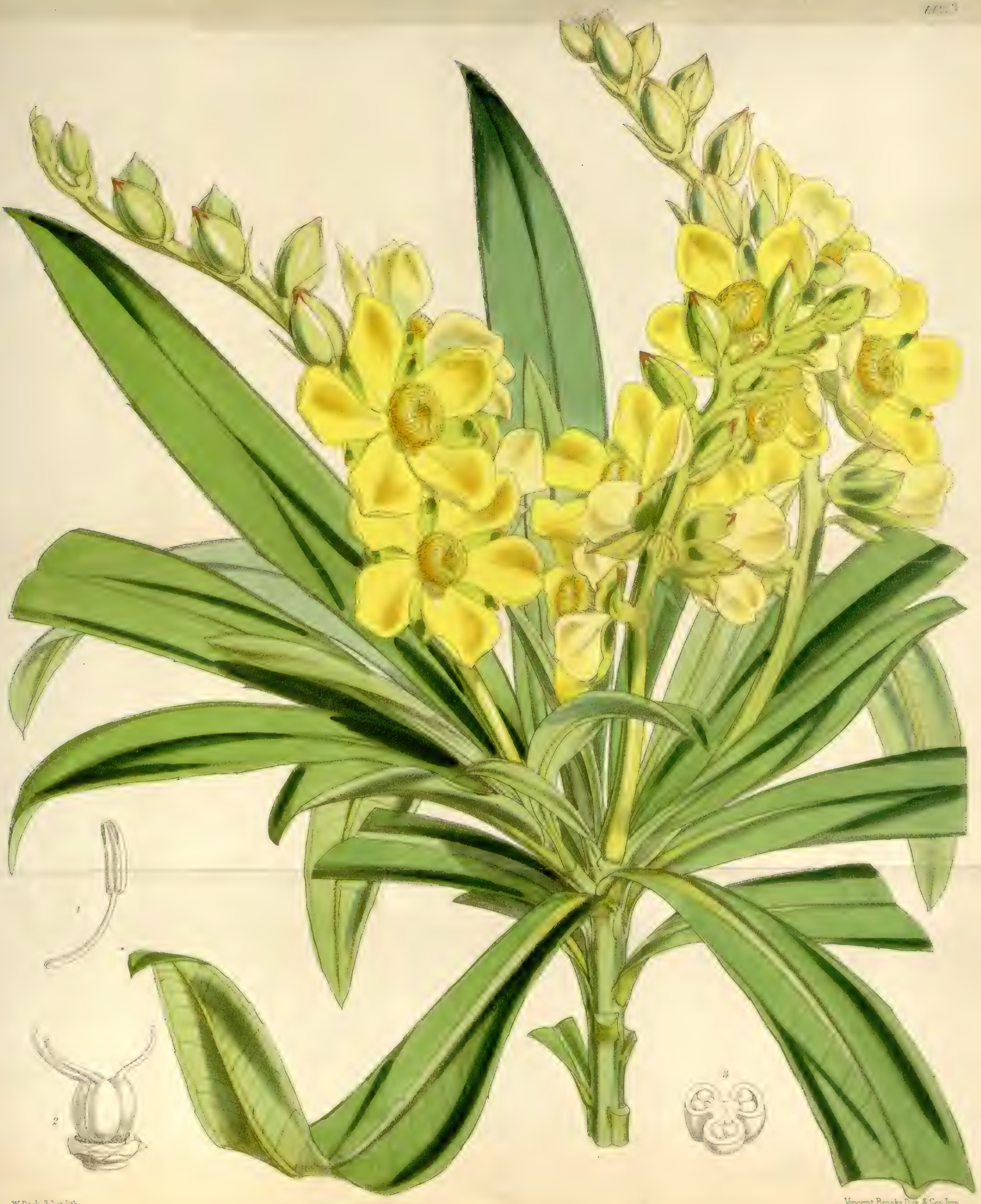

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TAB. 6053.

HIBBERTIA BAUDOUINII.

Native of New Caledonia.

Nat. Ord. DILLENIACEÆ.—Tribe HIBBERTIEÆ.

Genus HIBBERTIA, *And.*; (*Benth. and Hook. f. Gen. Pl.*, vol. i. p. 14).

HIBBERTIA (§ Cyclandra) *Baudouinii*; suffrutex humilis glaberrimus robustus, foliis subpedalibus sessilibus anguste lanceolatis acuminatis integerrimis v. subserratis subtus pallidis costa valida, racemis elongatis robustis multifloris, floribus secundis 2 poll. diam. subsessilibus, bracteis oblongo-v.-lanceolato- subulatis, sepalis oblongis apiculatis, petalis obovato-cuneatis emarginatis, staminibus ad 100 extimis sterilibus, carpellis 2-4 glabris.

HIBBERTIA Baudouinii, *Brong. et Gris, Plantes peu connues de la Nouvelle-Caledonie, in Ann. Sc. Nat.*, ser. 5, vol. ii. p. 149.

This noble plant differs considerably in habit from its Australian congeners, and approaches in the curious inflorescence to its New Caledonian ally *Trisema*, from which it is distinguished by being pentapetalous. It was discovered by the traveller whose name it bears near Port-de-France in New Caledonia; and was introduced into Europe by Dr. Moore of the Glassnevin Gardens, Dublin, who received seeds of it from his brother, the Superintendent of the Botanical Gardens of Sydney. There is an indigenous fruiting specimen in the Kew Herbarium sent under this name by Vieillard, gathered on the top of Mount Mou, which has shorter leaves and very much enlarged sepals.

The distribution of the genus *Hibbertia* is very remarkable, it abounds in Australia, three or four species are natives of New Caledonia, and two of Madagascar; the latter, however, forming a very distinct section or subgenus; whilst the New Caledonian species belong to a section that abounds in the adjoining continent. The genus is absent from New Zealand.

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Descr. A small shrub, glabrous in all its parts, except an obscure silky pubescence on the edges of the sepals. *Stem* as thick as the little finger, grooved. *Leaves* crowded towards the ends of the branches, spreading, a foot long, sessile, narrow lanceolate, acuminate, quite entire or minutely distantly serrulate; midrib broad, pale; nerves very faint, coriaceous, paler and subglaucous beneath. *Racemes* axillary, equalling the leaves, stout, subrecurved. *Flowers* secund, subsessile, two inches in diameter. *Bracts* and *bracteoles* three, shorter than the sepals, the lower narrow-oblong, acuminate, the upper subulate, green, deciduous. *Sepals* oblong, concave, apiculate, coriaceous, green. *Petals* bright yellow, obovate-cuneate, retuse. *Stamens* very numerous and densely crowded; filaments slender; anthers linear-oblong, the outer imperfect. *Carpels* 2—4, ovoid, turgid, glabrous, with slender diverging styles.—*J. D. H.*

Fig. 1, Stamen; 2, carpels; 3, transverse section of do.:—*all magnified.*

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TAB. 6054.

KÆMPFERIA ROTUNDA.

Native of the East Indies.

Nat. Ord. SCITAMINEÆ.—Tribe ZINZIBERA.

Genus KÆMPFERIA, *Linn.; (Endl. Gen.*, p. 223).

KÆMPFERIA *rotunda*, radicibus tuberiferis, scapis precocibus, vaginis latis acutis viridibus v. luride purpureis, foliis elliptico-lanceolatis acutis disco saturate viridi ceterum colore pallidiore irrovatis subtus fusco-purpureis, ovario glabro, perianthio exteriore spathaceo, petalis 3 exterioribus anguste loriformibus albis interiores excedentibus, interiorum 2 superiorum late oblongis apiculatis fere albis, inferiore 2-lobo lobis orbiculato-oblongis apiculatis purpureis, antheræ connectivo superne in laminam 2-fidam polymorpham fisso.

KÆMPFERIA rotunda, *Linn. Flor. Zeylan.*, p. 9; *Tab. nost.*, 920. *Roscoe Scitam. Pl.*, t. 97. *Wight Ic. Pl. Ind. Or.*, t. 2029. *Flore des Serres*, vol. x. t. 1041.

K. longa, *Jacq. Hort. Schoenbr.*, t. 317. *Ann. Sc. Nat.*, ser. 2, vol. xv. 317, t. 20, f. 5-8. *Redouté Lil.*, vol. i. t. 49.

MALAN Kua, *Rheede Hort. Mal.*, pt. xi. p. 17, t. 9.

At first sight, on comparing this with the early figure of *K. rotunda* (Tab. 920), it would appear to be a very different plant, and its close accordance with Jacquin's fine figure of *C. longa*, led at once to its reference to that species. After, however, a careful comparison with the excellent dissected specimen of *K. rotunda* in the Kew Herbarium, and the numerous published plates of that plant, including the above cited very indifferent one published nearly seventy years ago in this Magazine, I cannot but regard *K. longa* as a well cultivated form of *rotunda*, which, as in the case of the specimen here figured, produced its flowers in April, and its leaves at about midsummer. This opinion is, indeed, expressed by Sims (see Tab. 920), who, notwithstanding that his figure bears no great resemblance to Jacquin's, pertinently says, "Upon what ground Jacquin considers his *K. longa* as a different species I cannot conjecture."

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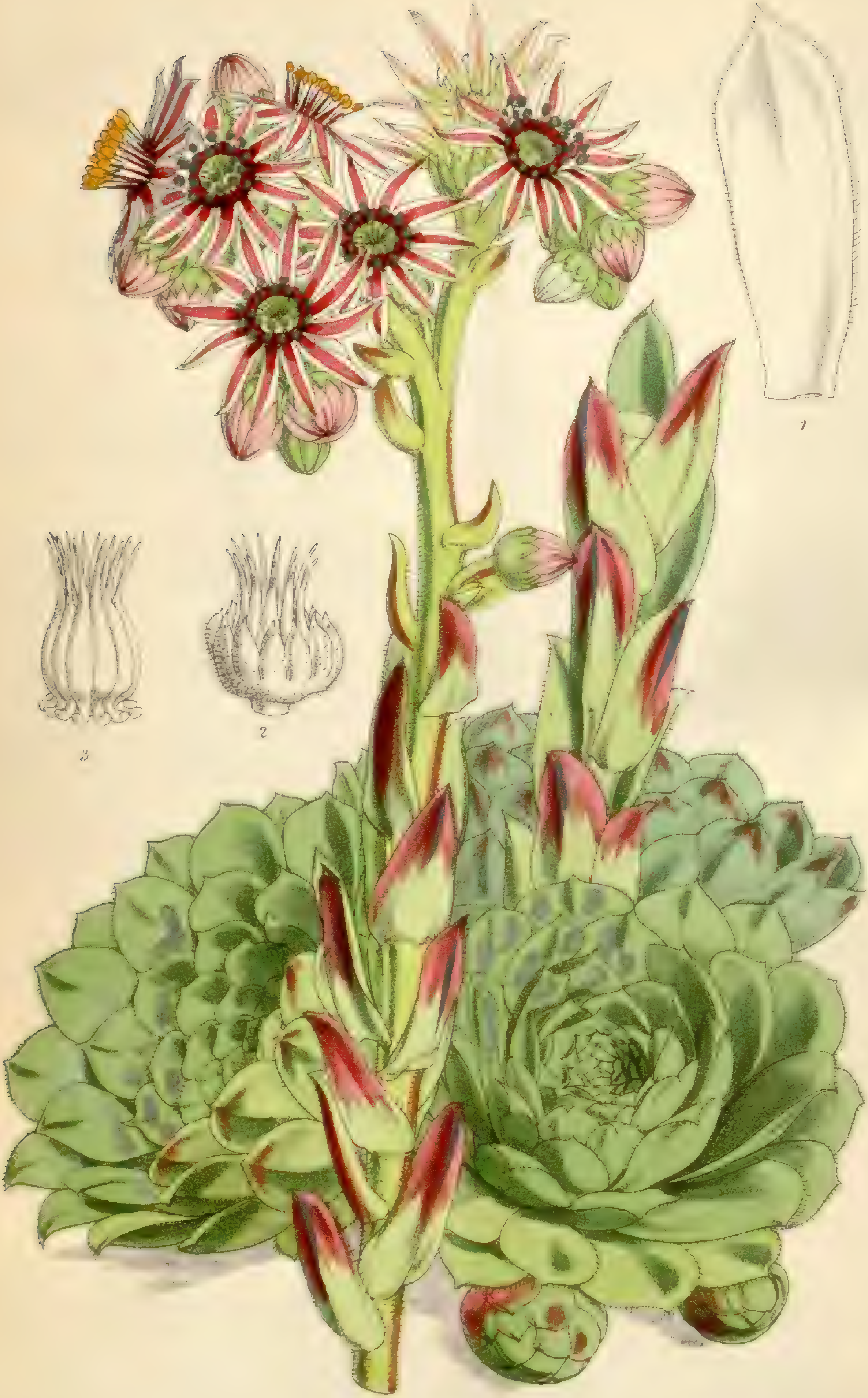
Kæmpferia rotunda was known to Bauhin and Ray, and has been cultivated in England for nearly a century; it is a reputed native of the East Indies, but as far as I can make out is only known in continental India in a cultivated state; Roxburgh says that it is "no doubt a native of various parts of India," but adds, "yet I cannot say where it is indigenous." Wight figures it from Malabar, but does not state whether it is indigenous or no. Thwaites includes it in his enumeration of Ceylon plants, as an inhabitant of the warmer parts of that island. The specimen here figured flowered in Mr. Bull's establishment in April of the present year.

Col. Heber Drury, the best authority on the economic plants of India, says of this the Bhu champa, or Bhue champa of Bengal (Useful Plants of Inda, ed. 2, p. 271), that its native place is unknown, and that it is much cultivated in gardens, because of the beauty and fragrance of the flowers; he adds, that according to Rheede, the whole plant is reduced to powder, and used as an ointment, in which state it is reckoned as very useful in healing wounds, &c. The root, which has a hot ginger-like taste, is useful in anasarcous swellings.—*J. D. H.*

Fig. 1, Apex of ovary with stamen and style:—*magnified.*



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TAB. 6055.

SEMPERVIVUM TECTORUM, VAR. ATLANTICUM.

Native of the Greater Atlas.

Nat. Ord. CRASSULACEÆ.

Genus SEMPERVIVUM, *Linn.;* (*Benth. and Hook. f. Gen. Pl.*, vol. i. p. 660).

SEMPERVIVUM *tectorum*, var. *atlanticum;* foliis rosularum obovato-oblongis apice breviter acuminatis utrinque breviter glanduloso- pubescentibus margine ciliatis caulinis oblongo-lanceolatis, superioribus cymisque glanduloso-pubescentibus, calyce infra medium fisso, staminibus omnibus perfectis virgineis obscure viridibus, squamis hypogynis minutissimis glandulosis, carpellis divergentibus toro elevato suffultis et a verticillis exterioribus squamis exceptis omnino discretis staminibus æqui-longis.

SEMPERVIVUM tectorum, *Linn.* var. atlanticum, *Ball, in Trimen. Lond. Journ. Bot.*, 1873, *ined.*

The Common Houseleek is so polymorphous a plant that many species have been made of its various forms, which differ remarkably in beauty, brightness of colour, and value in a horticultural point of view. Of these the present is one of the handsomest and most distinct, so much so that Mr. Ball has doubtfully proposed it as a sub-species. It was discovered by Messrs. Ball, Maw, and myself, on rocks in the valley of Ait-Mesan in the Greater Atlas, at an elevation of about 5000 feet, and flowered on the rockwork in Kew in June of the present year. Its bright star-like flowers, with white petals, having a broad ruby-coloured central stripe, gave it a very sparkling appearance. Like the Common Houseleek it is easily propagated, and should replace its duller coloured prototype in general estimation.

DESCR. *Rosettes* three to four inches across. *Leaves* two inches long, bright green, obovate-oblong oblanceolate or obovate-spathulate, very shortly mucronate, more or less glandular-pubescent on both surfaces, margin ciliate, tips reddish; cauline leaves oblong-lanceolate, upper glandular-pubescent, all turning a brilliant vinous red-purple as the flowers begin to expand. *Cyme* dichotomous, densely

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glandular-hairy, many-flowered, spreading. *Flowers* one and a quarter to one and a half inches in diameter. *Calyx* subspherical, densely hairy, divided three-fourths of the way down into twelve oblong acuminate green segments. *Petals* spreading, narrow linear, acuminate, white, with a broad, bright red-purple median band. *Stamens* all perfect; anthers dull green before bursting. *Hypogynous* glands very small, glandular. *Carpels* erect, equalling the stamens, raised on a lobed disk considerably within the staminal whorl, green; styles subulate, slightly recurved.—*J. D. H.*

Fig. 1, Leaf; 2, calyx and carpels; 3, carpels and hypogynous glands:—*all magnified.*

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TAB. 6056.

PHILYDRUM GLABERRIMUM.

Native of the Pacific Islands?

Nat. Ord. PHILYDREÆ.

Genus PHILYDRUM, *Banks; (Endl. Gen. Pl.*, p. 133).

PHILYDRUM *glaberrimum;* foliis ensiformibus, inflorescentia paniculata alba, bracteis lanceolatis acuminatis, perianthii foliolis recurvis 2 exterioribus subæqualibus ovato-oblongis obtusis, lateralibus multo minoribus staminis filamento brevi crasso, anthera oblonga loculis rectis v. paulo incurvis connectivo dorso rubro, stylo gracili, ovario glaberrimo.

The natural order to which this plant belongs has hitherto been supposed to consist of but two species, belonging to as many genera, of which one, *Hetæria*, is Australian, and the other, *Philydrum lanuginosum* (Tab. nost. 783), extends from eastern temperate Australia to China and the Malayan Peninsula. It was therefore with no small surprise that I received from Mr. Bull in May last living specimens of a plant which, on examination, proved to belong to this order, and to be so closely allied to the *Philydrum lanuginosum* in floral structure, as well as in habits and foliage, that I cannot consider its one divergent character, that of almost straight (not spirally-twisted) anther-cells, to have more than a sectional or subgeneric value, to which the name of *Orthothylax* may be attached. Unfortunately the native country of this very interesting discovery is not certainly known; Mr. Bull having received it from Sydney in a box that contained both Australian and Pacific Island plants. Considering how well known the former Flora now is (thanks especially to Baron Mueller's researches), and how little known are the Pacific Islands botanically, it is probable that this *Philydrum* comes from the latter.

The genus *Philydrum* is a very remarkable one, on account of the dimerous perianth and monandrous flowers. The latter, Griffith (Notulæ Pl. iii. p. 230) has correctly shown to be due to the coalition at a very early period of the two posticous sepals; and he attributes the monandrous andrœcium to the suppression of the two posticous stamens, not considering the two lateral perianth segments to be staminodes, on account of their appearing to belong to a different series from the stamens. In our species, however, there is a very obscure connexion between the bases of these two segments and the filament, which favours the view of their staminal origin, though they may belong to an outer series of stamens, whilst the solitary developed one belongs to an inner series.

The affinity of *Philydreæ* has been disputed. Brown regarded them as having affinities with *Orchideæ* and *Burmanniaceæ;* Endlicher places them between *Melanthaceæ* and *Junceæ;* and Lindley refers them to his alliance *Xyridales*, which also includes *Commelynaceæ*, *Meyaceæ*, and *Xyridaceæ*, a position which appears to be the most natural.

Descr. A tufted herb, three feet high, quite glabrous throughout. *Leaves* equitant, ensiform, acuminate, two feet long, one inch broad, dull green, coriaceous, margin perfectly entire, midrib prominent; nerves very oblique, few, with transverse venules; sheaths with scarious edges. *Flowering-stem* exceeding the leaves, terete, leafy. *Panicle* erect, with erect branches, a foot long, its branches, flowers, and upper bracts white; lower bracts ensiform, two inches long, green; upper ovate-lanceolate, acuminate, one quarter to half an inch long. *Flowers* sessile, three-quarters of an inch broad in their longest (vertical) diameter. *Outer Perianth-segments* oblong, ovate, obtuse, or apiculate, recurved, white; inner much smaller, also recurved and obtuse. *Stamens* slightly curved, filaments very short and stout. *Anthers* oblong, obtuse, with parallel contiguous cells, connective orange-red at the back. *Ovary* curved, unequally 3-lobed and 3-celled, quite glabrous; style slender, and stigma minute.—*J. D. H.*

Fig. 1, Flower and bract; 2, front view of flower; 3, stamens; 4, ovary; 5, vertical section of do.:—*all magnified.*

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TAB. 6057.

MESEMBRYANTHEMUM INTRORSUM.

Native of South Africa.

Nat. Ord. FICOIDEÆ.—Tribe MESEMBRYEÆ.

Genus MESEMBRYANTHEMUM, *Linn.; (Benth. and Hook. f. Gen. Pl.*, vol. i. p. 853).

MESEMBRYANTHEMUM *introrsum;* ramulis effusis erecto-decumbentibus, junioribus hispidulis foliisque minute celluloso-tessellatis, foliis remotis ½-cylindraceis patenti-recurvis apice sepalisque penicillatim barbatulis, setis ad 10 badiis, floribus terminalibus solitariis gracile pedunculatis, calycis tubo turbinato, lobis subcylindraceis duobus majoribus, petalis sub-2-seriatis radiantibus anguste linearibus ochraceis vitellinis roseis v. rubris, filamentis albis externis anantheris, stigmatibus 5 minutis conico-recurvis.

MESEMBRYANTHEMUM introrsum, *Haworth in Phil. Mag.*, 1824, p. 428. *ex DC. Prod.*, vol. iii. p. 440. *Salm Dyck, Monog. Mesemb.*, fasc. 52, f. 2. *Harv. and Sond. Fl. Cap.*, vol. iii. p. 446.

There are many good reasons for encouraging the cultivation of the once favourite genus *Mesembryanthemum*, amongst which not the least is their duration, for when once established they need never be lost; they are further evergreen, cost little in soil and cleaning, and many of them are amongst the most brilliantly coloured greenhouse plants. The subject of the present plate has been established at Kew for at least half a century. The first notice I find of it is in the work of Haworth, quoted above, who states that it was cultivated in Kew in 1824. I do not, however, find it described in the second edition of "Hortus Kewensis," published in 1811, where 175 species are enumerated as then in cultivation in the Royal Gardens; a number reduced in 1855 to 157, and now increased to 225, including some varieties and species that have not yet flowered. Upwards of 300 species are described from the Cape alone, in Harvey and Sonders' Flora.

DESCR. *Stem* branched from the base; branches a foot and more long, at first erect, then prostrate or pendulous, as

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thick as a sparrow quill, and like the surface of the leaves tessellated and papillose with bladdery cells; young parts minutely hispid, each papilla bearing a bristle. *Leaves* in distant pairs, about one inch long, somewhat recurved, semiterete, with very rounded sides, tipped with a pencil of about ten spreading brown bristles, connate at the base, light green, fleshy. *Flowers* three-fourths of an inch in diameter, on long slender terminal peduncles. *Calyx-tube* turbinately hemispheric, obscurely obtusely angled, green; limb of five spreading and recurved segments like the leaves, of which two exceed the petals, and are tipped like the leaves with bristles. *Petals* biseriate, the inner shorter, narrow linear, obtuse, very various in colour, white fading to rose-colour, or ochreous, or red. *Stamens* short, filaments white; the outer with imperfect anthers. *Stigmas* five, small, short, conic, recurved.—*J. D. H.*

Fig. 1, Portion of stem and leaves; 2, vertical section of flower; 3, stigmas:—*all magnified.*

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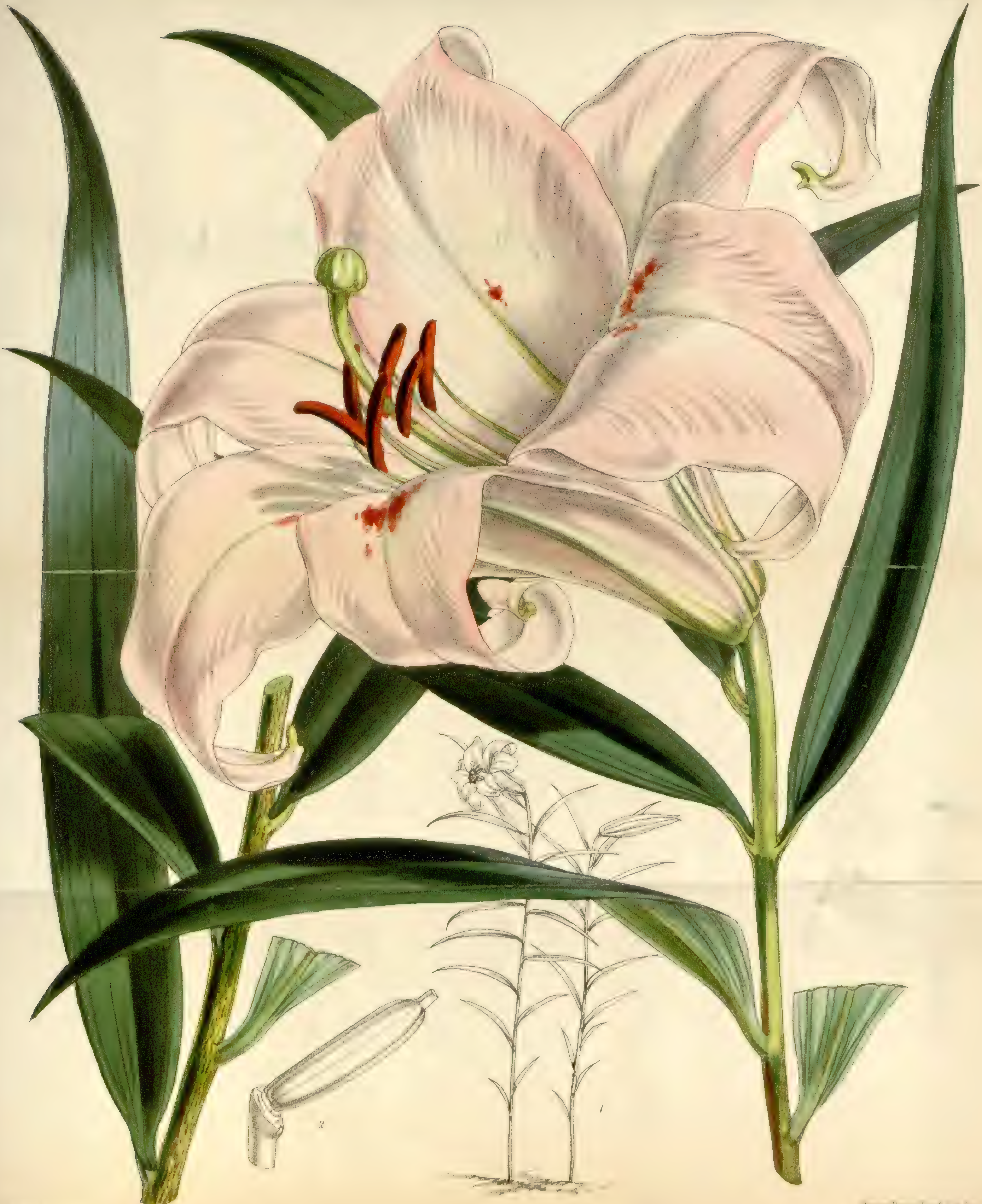

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TAB. 6058.

LILIUM (HYBRIDUM) KRAMERI.

Raised from Japanese Parents.

Nat. Ord. LILIACEÆ.—Tribe TULIPEÆ.

Genus LILIUM, *Linn.; (Baker in Gard. Chron.*, 1871).

LILIUM (hybridum) *Krameri;* caule gracili erecto simplici 4-pedali tereti viridi fusco leviter striato, foliis sparsis horizontalibus breviter petiolatis anguste lanceolatis acuminatis glabris supra saturate viridibus subtus pallidis, flore solitario terminali inclinato v. horizontali 8-10 poll. diametro, albo pallide roseo v. carneo, perianthio infundibuliformi-campanulato, segmentis oblanceolatis subacutis epapillosis supra medium revolutis, staminibus declinatis, antheris lineari-oblongis polline ferrugineo, stigmate viridi.

As a rule hybrid plants do not find a place in the *Botanical Magazine*, from no want of admiration for these always interesting, and often beautiful, productions of the gardener's skill, but from the simple fact that nature supplies superabundant materials for this work, and that it is the more legitimate function of a Botanical work to illustrate the possible or probable parents of future hybrids, and thus afford to others the means of elucidating the history of hybrids when these are formed. In the present case it was under the erroneous impression that *L. Krameri* was a species that it was prepared for publication in the Magazine, and not with the view of illustrating itself or its origin, which are, however, both sufficiently deserving of a place in the pages of a Botanical work.

Lilium Krameri has been forwarded for figuring both by G. Wilson, Esq., F.L.S., and by Messrs. Barr and Sugden, to the former of which gentlemen a first-class certificate was awarded for it by the Royal Horticultural Society. According to Mr. Baker it is a hybrid between *L. speciosum* and *L. japonicum*, an opinion which Mr. Wilson thinks confirmed

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by its foliage and odour. It would be interesting to know precisely, respecting this relationship, which of the parents took the father's part and which the mother's duties. Mr. Wilson informs me that he believes it was sent by Mr. Kramer of Japan to Messrs. Teutschel of Colchester two years ago under three varieties, accompanied by coloured drawings. Of these No. 1 had rather expanded flowers like *L. longiflorum* with mauve tint on the back of the petals. No. 2 was wholly mauve. No. 3 was wholly white. Of these Mr. Wilson has flowered Nos. 1 and 2, of which No. 1 had not smooth edges to the petals, and No. 2 was of a deeper mauve than in the drawing. Mr. Barr has been good enough to give me precisely similar information as the result of his experience, with the addition that these Lilies vary much in size according to cultivation.

Referring to figures of the supposed parents of *L. Krameri*, this plant agrees with *L. speciosum* var. *album* (Tab. nost. 3785) in the form of the flower, fragrance, declinate stamens, and long anthers; in all of which points it differs from *L. japonicum*. On the other hand, it agrees with *L. japonicum* in the narrow leaves, absence of papillæ on the perianth segments, and colour of the pollen.

Unfortunately little is known of these Japanese Lilies in their wild state. Most are imported as cultivated in the gardens of the natives, though *L. auratum*, the noblest of all, is said to abound in the fields of Japan. All vary much in colour, *L. speciosum* especially, from deep rose colour to pure white.—*J. D. H.*

Fig. 1, Reduced figure of plant; 2, young capsule:—*both of the natural size.*

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[illegible]

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TAB. 6059.

CARAGUATA ZAHNII.

= GUZMANIA ZAHNII fide L. Cutak

Native of Chiriqui.

Nat. Ord. BROMELIACEÆ.—Tribe TILLANDSIEÆ.

Genus CARAGUATA, *Plumier*; (*Endl. Gen. Pl.*, p. 183).

CARAGUATA *Zahnii*; cæspitosa, subcaulescens, glaberrima, nitida, foliis pedalibus e basi lata lineari-lanceolatis integerrimis recurvis acutis et apiculatis infra medium concavis flavis rubro-striatis, ultra medium planis coccineis apicem versus viridibus, scapo erecto dense foliaceo-vaginatis, vaginis spithamæis imbricatis suberectis subulato-lanceolatis, panicula densa aurea, pedicellis brevibus, bracteis ovato-subulatis apicibus elongatis rubris, bracteolis ovato-oblongis, sepalis lineari-oblongis subacutis, corollæ tubo calycem paulo superante lobis ovatis obtusis concavis, filamentis tubo corollæ adnatis, antheris vix exsertis lineari-oblongis, stigmate 3-fido.

TILLANDSIA Zahnii, *Hort. Veitch.*

I have adopted the specific name proposed for this splendid plant by its importers, Messrs. Veitch, in commemoration of the services of their excellent collector Mr. Zahn, who discovered it in 1870, in Chiriqui, Central America, shortly before he perished by drowning, a victim to his enterprise, on his way to Costa Rica.

The genus *Caraguata* comprises the *Tillandsias* with united petals and filaments adnate to the tube of the corolla. A good illustration of one species, *C. splendens*, is given by Professor Morren, of Liege, who is justly celebrated for his knowledge of *Bromeliaceæ*, and the fine collection he has formed of them in the Botanic Garden of Liege, in the Flore des Serres (t. 1091); the *C. Zahnii* is nearly allied both to this and to Grisebach's *Tillandsia compacta*, but differs in the much longer leaves, long sheaths on the scape, and form of the bracts. Messrs. Veitch's specimen, which is here figured, flowered in May of the present year.

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Descr. *Stems* tufted, branched from the base, very short, densely leafy, whole plant perfectly glabrous and shining. *Leaves* a foot long, by one to one and a quarter inches broad at the middle, linear-ligulate, acute, apiculate; lower half concave, rounded at the back, yellow with crimson stripes; upper half nearly flat, of a bright crimson passing into yellow, and then into green at the tip, margin quite entire and smooth. *Scape* erect, densely clothed with erect scarlet sheaths a span long, the long acute tips of which reach the inflorescence; the sheaths are lanceolate-subulate, obtusely keeled, quite entire, and very indistinctly nerved. *Inflorescence* an oblong compressed dense panicle of a pale golden colour, except the scarlet tips of the lowest bracts, which project from the base, and are ovate with long subulate points; bracteoles boat-shaped, obtuse, hard and coriaceous, rather exceeding the sepals. *Sepals* linear-oblong, very concave, subacute, coriaceous, imbricate. *Corolla-tube* shortly exceeding the calyx, terete; limb one-third of an inch in diameter, of three ovate very obtuse concave lobes. *Stamens* with the filaments wholly adnate to the corolla-tube, at the mouth of which the linear-oblong yellow anthers appear to be sessile. *Ovary* trigonous; stigmatic lobes three, linear, erect, twisted.—*J. D. H.*

Fig. 1, reduced view of whole plant; 2, flower; 3, portion of corolla and stamens; 4, ovary style and stigmas:—figs. 2, 3 and 4, *magnified.*

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TAB. 6060.

LINARIA SAGITTATA.

Native of Marocco.

Nat. Ord. SCROPHULARINEÆ.—Tribe ANTIRRHINEÆ.

Genus LINARIA, *Linn.*; (*Benth. in DC. Prodr.*, vol. x. p. 266).

LINARIA (Elatinoides) *sagittata*; glabra, caudice brevi lignosa, caulibus filiformibus subscandentibus elongatis intricatim ramosis, foliis alternis petiolatis oblongo-hastatis lanceolatis linearibus basi sagittatis integerrimis, floribus flavis axillaribus solitariis, pedicellis capillaribus, calycis segmentis lanceolatis acutis, corollæ amplæ flavæ calcare tubo longiore.

LINARIA heterophylla, *Spreng. Syst. Veg.*, vol. ii. p. 790; *Chavan. Monog. Linar.*, p. 112; *Benth. in DC. Prod.*, vol. vii. p. 270; *Webb. & Berth. Phytogr. Canar.*, vol. iii. 141, t. 181 (*non Desfontaines*).

L. Webbiana, *Visiani L'Orto Bot. di Torino*, p. 142; *ex Walp. Rep.*, vol. iii. p. 195.

L. circinnata, *Sweet, Brit. Fl. Gard.*, ser. 2, vol. iii. t. 235.

L. Lancerottæ, *Delile, Sem. Hort. Monsp.*, 1836, p. 26 (ex Webb.).

ANTIRRHINUM heterophyllum, *Schousb. Beobacht. Gewächs. Marokk.*, 181, t. 3; *Willd. Sp. Pl.*, vol. iii. p. 234.

A. sagittatum, *Poir. Dict. Suppl.*, vol. iv. p. 19.

In the June number of this Magazine (Tab. 6041)* it was pointed out that the name *Linaria heterophylla*, which had long been applied to the species now figured, must be retained for that to which it was first applied by Desfontaines, whose excellent published drawing and description left nothing wanting for the recognition of the plant to which he had applied that name. I have now the opportunity of figuring the species which had usurped the name of *heterophylla*, and which is a very interesting one on account of its subscandent habit, that enables it to climb amongst the hedges of Marocco to a height of five feet and more, forming tangled masses that spread for yards over the bushes, which are sometimes speckled with its golden blossoms. It was described first from Schousboe's Maroccan specimen as *Antirrhinum heterophyllum* by Schousboe the Danish Consul and naturalist; then by Poiret, from specimens in Desfontaines' Herbarium (no doubt Algerian) as *A. sagittatum;* then by Sweet as *L. circinnata,* a name derived from the recurved leaves of the specimens he figured, which are not characteristic of the species: his specimens were supposed to be raised from S. American seed. Later still in Visiani (according to Walpers) as *L. Webbiana,* from Canarian specimens; and lastly by Delile as *L. Lancerottæ.*

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* On the second page of the description, and third line from the top, for *pallidiflora* read *heterophylla*.

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Linaria sagittata is a common plant about Magador, and extends as far south as Agadir. It is also found in the Island of Lancerotte, one of the Canaries, and that one considerably the nearest to the Maroccan coast, but in no other island of that group, which looks as if it were a comparatively recent importation that had not as yet spread further to the westward. The specimen here figured was raised from seeds brought by us from Marocco in 1871, and which flowered in June of the present year in Mr. Maw's garden and in the Royal Gardens, Kew.

Descr. *Stems* very slender, six to ten feet long, branched, subscandent from a woody perennial stock. *Leaves* scattered, distant, petioled, one to one and a half inches long, lanceolate-oblong or linear with a hastate base, quite entire, primordial forming a rosette at the crown of the stock, sessile, elliptic-lanceolate, acute. *Flowers* yellow, axillary, solitary on capillary pedicels often exceeding the leaves. *Sepals* lanceolate, acute. *Corolla* one and a half inches long, lips very broad, upper with three short lobes, lower very short with a prominent palate; spur pubescent, exceeding the tube. *Capsule globose,* bursting by two pores. *Seeds* reniform.—*J. D. H.*

Fig. 1, Flower:—*magnified.*

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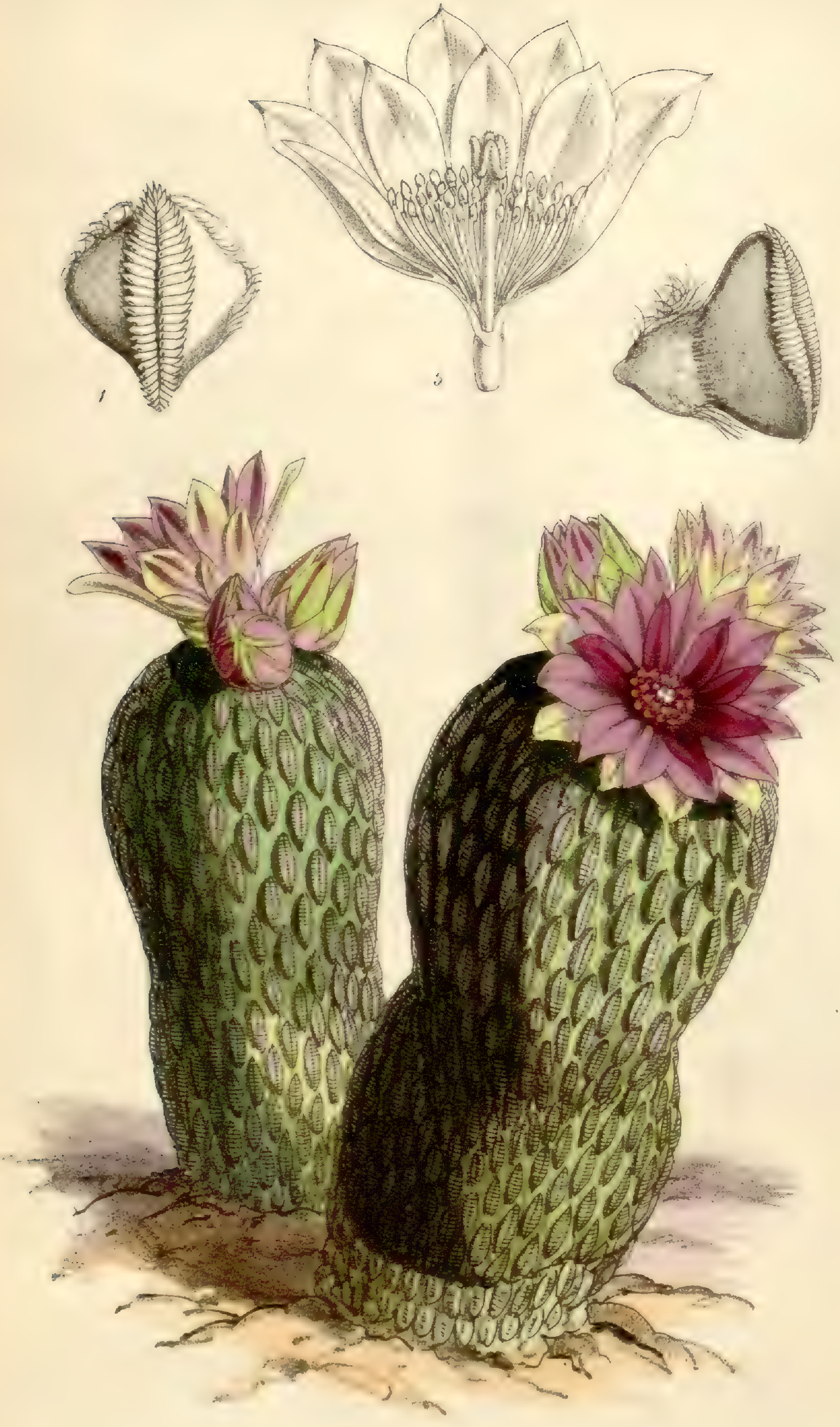

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TAB. 6061.

PELECYPHORA ASELLIFORMIS VAR. CONCOLOR.

Native of Mexico.

Nat. Ord. CACTEÆ.—Tribe ECHINOCACTEÆ.

Genus PELECYPHORA, *Ehrb.*; (*Benth. and H. f. Gen. Plant.*, vol. i. p. 848).

PELECYPHORA *aselliformis; Ehrenberg in Bot. Zeit.*, vol. i. (1843) p. 737; *Walp. Rep.*, vol. v. p. 822; *Salm-Dyck Cact. in Hort. Dyck. cult.* 5, *et adn.* 78; *Först. Handb. der Cact.* p. 257; *Labouret. Monog. Cact.* p. 148. *Illust. Hortic.*, vol. vi. t. 186.

VAR. *concolor*, petalis concoloribus.

This remarkable and still very rare plant, has been long known amongst Cactus growers, and has in fact been in the trade for many years, having been imported by the brothers Tonel from Mexico, where it was said to have been found with the equally anomalous Cactaceous genus *Anhalonium* (Ill. Hort., vol. xvi. t. 605 a). It was first published by Ehrenberg, from specimens grown in Berlin in 1843, but nothing was known of its floral character till Lemaire, in 1858, published in the "Illustration Horticole" quoted above, an excellent figure of it with a very full and interesting description.

The specimen here figured was forwarded by Mr. Justus Corderoy of Blewbury, early in June last, with the observation that the flower differs markedly in colour from that of Lemaire's plant, which has an outer series of pale petals, whereas those of this are uniformly of a rose-purple, like the inner series of Lemaire's. Though so unlike other Cacti in the sculpturing of the stem and its mammillæ, *Pelecyphora* is not essentially different in these respects from *Mammillaria*; the mammillæ (which Lemaire regards as abnormal petioles and calls podaria) are vertically oblong, and crowned vertically with two contiguous rows of flat short horny cuspidate processes that overlap horizontally, and resemble the teeth of a comb; these are analogous to the spines of a *Mammillaria*, but instead of being free and projecting, they lie flat, and are adnate to the ridge of the mammilla. This double series resembles curiously a wood-louse, with which insects the plant seems covered, and which fact has given it the trivial name of *aselliformis*.

DESCR. Stem tufted, dark green, shortly cylindric, three to four inches high, one and a half to two inches in diameter, often constricted about the middle, apex rounded. *Mammillæ* spirally arranged, vertical, one third of an inch long, rhomboidal in a tranverse section at the middle, compressed laterally at the crown into a ridge, and contracted to a narrow base, woolly in the axils; spines minute, short, flat, cartilaginous, linear, oblique, subfalcate, pungent, bifariously arranged on the crest of the mammilla, adnate to its surface with free tips. *Flowers* clustered towards the top of the stem, one and a half inch in diameter, sessile. *Ovary* small, naked, oblong, sunk in the axils of the mammillæ. *Perianth-tube* short, free, naked, funnel-shaped; segments in about four series, obovate-oblong; acute, rose-purple. *Stamens* very numerous, inserted in the mouth of the tube, filaments slender, multiseriate; anthers minute. Style columnar; stigmas with four erect lobes.—*J. D. H.*

Fig. 1, front and 2, side view of a mammilla; 3, flower laid open:—
all magnified.

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TAB. 6062.

RUBUS DELICIOSUS.

Native of the Rocky Mountains.

Nat. Ord. ROSACEÆ.—Tribe RUBEÆ.

Genus RUBUS, *Linn.; (Benth. and Hook. f. Gen. Plant.*, vol. i. p. 616).

RUBUS *deliciosus;* inermis, pubescenti-tomentosus, eglandulosus, e setosus; caule erecto fruticoso ramoso, foliis simplicibus reniformi-rotundatis 3–5-lobis argute dentato-serratis rugosis, stipulis persistentibus lanceolatis, pedunculis 1–7-floris, floribus amplis, sepalis ovato-lanceolatis apice dilatatis foliaceis serratis petalis orbiculatis crenato-lobulatis brevioribus.

RUBUS deliciosus, *Torrey in Ann. Lyceum, New York*, vol. ii. p. 196; *Torr. & Gr. Flor. North America*, vol. i. p. 450; *G. Don, Gard. Dict.*, vol. ii. p. 539.

A very interesting and little-known plant, described by its discoverer, the late Dr. James, as bearing a fruit of delicious sweetness and considerable size; the latter of which characters is not borne out by the specimens communicated by Mr. Henry and figured herewith. Whatever may be the qualities of its fruit, there is no question about the handsomeness of the flowering plant, whose flowers somewhat resemble those of a white rose in size and abundance. It is a native of the Rocky Mountains, between the latitudes 39° and 45° N., on alpine ridges, where it was discovered by Dr. James in 1822, and there are specimens in the Kew Herbarium collected by James in the Colorado territory in 1861, and by E. Hall and J. P. Harbour in 1862. Between the dates of 1822 and 1861, it does not seem to have been seen by any naturalist. Torrey and Gray (l.c.) and G. Don, in his Gardeners' Dictionary, describe the flowers as purple, which is not the case.

Rubus deliciosus was introduced into cultivation in England by my friend Isaac Anderson Henry, F.L.S, of Hay Lodge, Edinburgh, who received the seeds from N.W. America in N.

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lat. 44°, and flowered the plants he raised from them in May, 1870. He describes it as "a bush a yard high, covered with large lovely blossoms, and quite an ornamental plant, irrespective of the coming fruit." The fruit, however, did not come either in that or the following year, but in the end of last July Mr. Anderson Henry sent a fruit, which is here figured, and which was of a maroon brown colour and agreeable taste.

Descr. A shrub a yard high, pubescent and tomentose, but without glands, bristles, or prickles; stems much branched, erect, covered with brown bark. *Leaves* long-petioled, two inches in diameter, orbicular-reniform, 3–5-lobed, acutely toothed, rugose, bright green; stipules lanceolate, acuminate. *Peduncles* solitary, axillary, 1–3-flowered; pedicels slender, often exceeding the leaves. *Flowers* many, two inches in diameter. *Sepals* ovate-lanceolate, with dilated cut tips. *Petals* pure white, orbicular, crenate, longer than the sepals, *Fruit* globose soft, sweet.—*J. D. H.*

Fig. 1, Calyx; 2, ovary; 3, ripe fruit:—*all but* 3 *magnified.*

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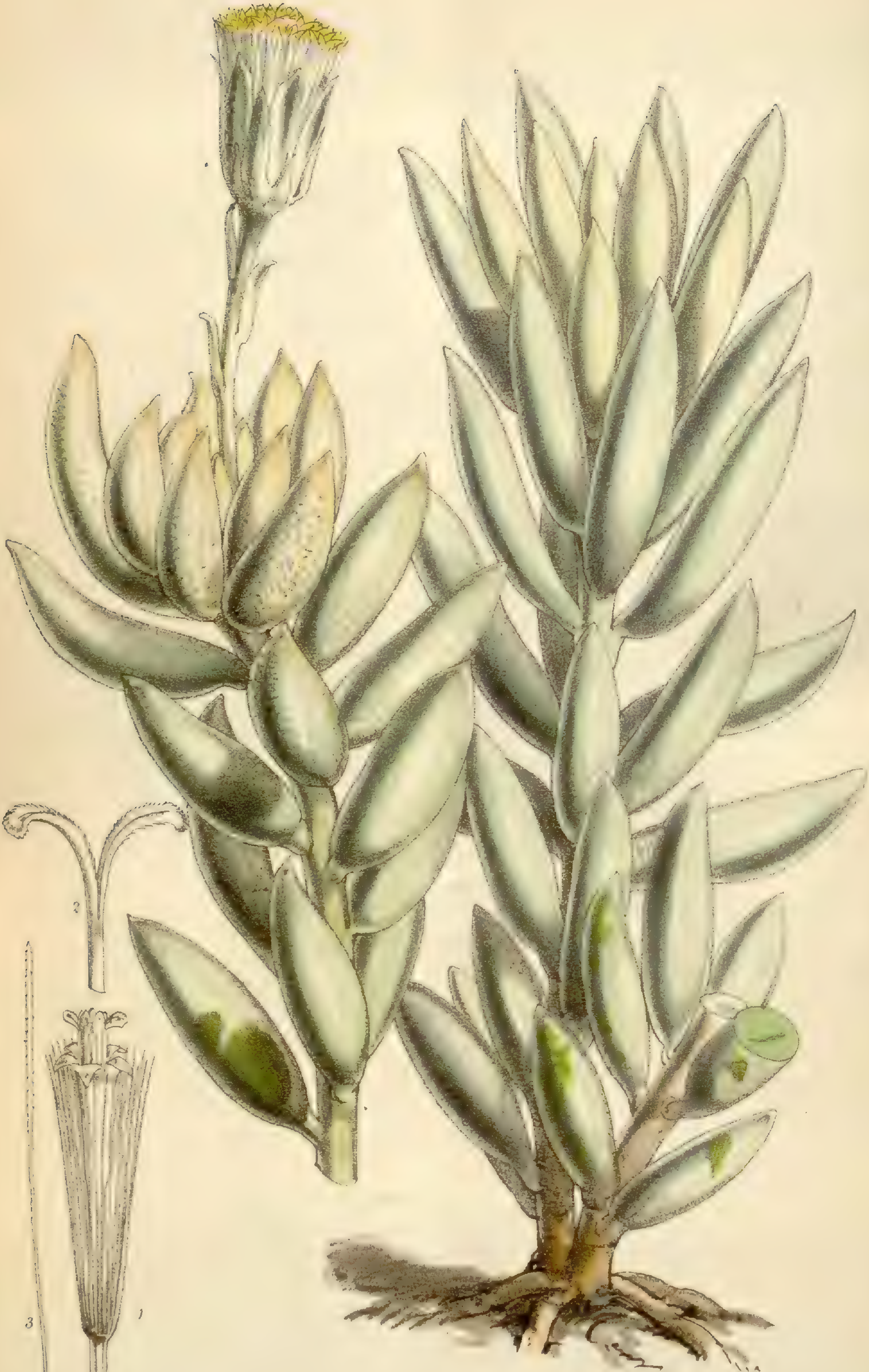

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TAB. 6063.

SENECIO (KLEINIA) HAWORTHII.

Native of South Africa.

Nat. Ord. COMPOSITÆ.—Tribe SENECIONIDEÆ.

Genus KLEINIA, *Haw.*; (*Benth. & Hook. f. Gen. Pl.*, vol. ii. p. 449, *sub* Senecio).

SENECIO (Kleinia) *Haworthii*; fruticosa, erecta, tota lana alba induta, caule ramisque teretibus carnosis, foliis 1–2-pollicaribus erecto-patentibus, cylindraceis utrinque attenuatis v. ellipsoideis acutis capitulis terminalibus pollicaribus solitariis pedunculatis, pedunculo robusto paucibracteato, involucri squamis lineari-oblongis acutis exterioribus paucis parvis subulato-lanceolatis appressis, floribus omnibus tubulosis involucrum excedentibus flavis, pappi setis tenuissimis, achenis papillosis, styli ramis apice truncatis.

KLEINIA Haworthii, *DC. Prodr.*, vol. vii. pt. i. 338; *Harv. and Sond. Fl. Cap.*, vol. iii. p. 318.

K. tomentosa, *Haw. Succ. Pl.*, p. 314.

CACALIA tomentosa, *Haw. Misc.*, p. 189, *non Linn.*, &c.

C. Haworthii, *Sweet in Loud. Hort. Brit.*, p. 336.

C. canescens, *Willd. Enum. Suppl.*, 427; *Spreng. Syst. Veg.*, vol. iii. p. 472.

This singular Cape succulent has long been cultivated in Europe, having been introduced into England in 1795 according to Haworth, though its name does not appear in either edition of the "Hortus Kewensis." Its exact habitat in South Africa is not known, and Harvey in the "Flora Capensis" quotes the description of De Candolle, and this seems all he knew about it. "Hab. Cape, cultivated in Europe (at least formerly), flower undescribed." As De Candolle also states that the flower is unknown in Europe, it was with great interest that I received a flowering specimen from my friend D. Hanbury, F.R.S., who obtained it in the garden of his brother Thomas Hanbury, Esq., at Palazzo Orengo, near Mentone, in July of the present year, and which is here figured. Mr. Hanbury informs me that it forms a little woody plant, a foot high, and flowered for the first time this year, producing but one flower-head. Though not, as above stated, enumerated in the "Hortus Kewensis," this plant has been cultivated for many years at Kew, where there is no record of its origin. It forms a small suffrutescent herb a few inches high, in the Succulent House, growing freely enough. Haworth again (Pl. Succ., 314) says, "This extraordinary plant has not yet produced any flowers with me. It is completely enveloped in a short dense skin-like cover of cottony wool, which is even capable of being stripped off the leaves like a skin, leaving the leaves themselves green after being divested of it. This cotton, if lighted in the flame of a candle, &c., slowly consumes in the manner of touch-paper, owing to the resinous quality this genus abounds in. *C. tomentosa* is capable of living very long without water, as are also other woolly succulents, &c." The absence of the conical points to the stigma of this species would remove it from *Kleinia* as characterized by most authors; its habit and capitulum are, however, those of the peculiar group of chiefly South African plants to which that name was originally applied.

Descr. A small undershrub, with spreading roots and erect much branched stems, wholly clothed with a soft silvery appressed snow-white wool, exposing when removed a very pale green cuticle. *Stem* and branches cylindric, as thick as a goose-quill. *Leaves* one to two inches long, cylindric or ellipsoid, acute, narrowed into a very short petiole. *Peduncle* terminal, two inches long, stout, erect, with a few scattered linear acute bracts. *Head* erect, one and a quarter inches long, cylindric, discoid, many-flowered; involucral-scales appressed, inner series about eight, linear-oblong, acute, with a few outer rather shorter lanceolate ones, and some still smaller subulate ones at the base. *Flowers* longer than the involucre; achene small, papillose; pappus hairs very slender and soft, silvery, equalling the slender tubular 5-lobed corolla; anthers with obtuse tips and bases; style arms spreading, truncate, pubescent.—*J. D. H.*

Fig. 1, Flower; 2, style arms; 3, pappus hairs:—*all magnified.*

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Tab. 6064.

PENTSTEMON Palmeri.

Native of California.

Nat. Ord. Scrophularineæ.—Tribe Cheloneæ.

Genus Pentstemon, *L'Her.; (Benth. in DC. Prodr.*, vol. x. p. 320).

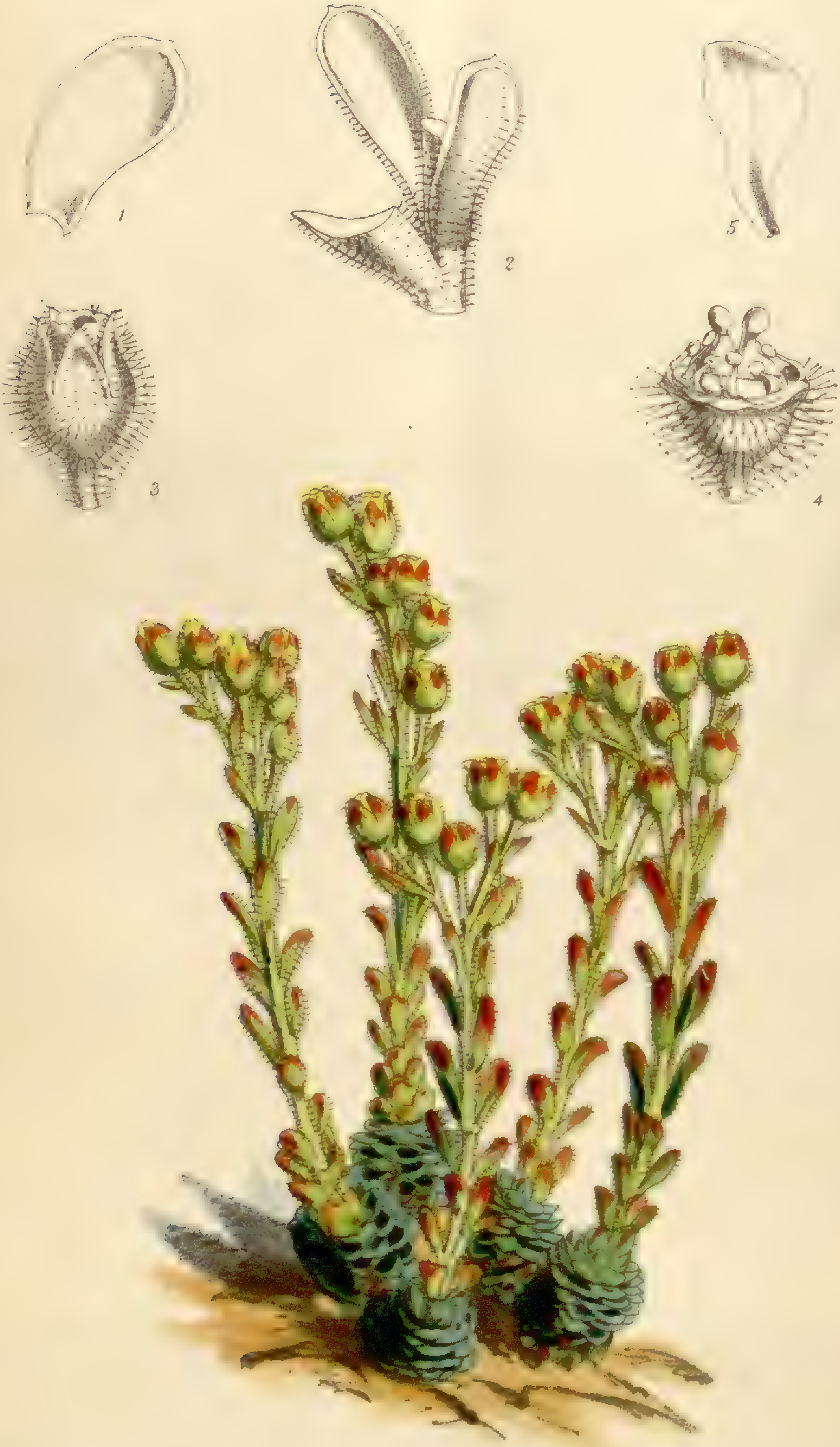
Pentstemon (Eupentstemon) *Palmeri;* erectus, elatus, robustus, glaberrimus, glaucus, superne glanduloso-puberulus, foliis late ovato- v. oblongo-lanceolatis argute inequaliter sinuato-dentatis inferioribus petiolatis spathulatis superioribus late connatis perfoliatis, panicula elongata racemosa nuda, pedunculis 2–4-floris, pedicellis gracilibus, bracteolis parvis, sepalis ovatis subacutis, corolla roseo-purpurea, tubo turgido-campanulato, limbo 2-labiato ringente, labio superiore brevi recurvo 2-lobo, inferiore 3-lobo, filamentis glaberrimis, staminodio villoso.

Pentstemon Palmeri, *A. Gray in Proc. Amer. Acad. Sc.*, vol. vii. p. 378, and vol. viii. p. 291. *Watson in U.S. Geol. Explor. 40th Parallel, Bot.*, p. 220.

The first notice of this noble species was drawn up by Professor Asa Gray, from a cultivated plant supposed to have been raised from seeds collected in Utah; and it has since been fully described from dried specimens collected by Sereno Watson during the Geological Exploration of the 40th Parallel, who gives as its habitat in the work quoted above "Arizona; foot-hills of the Trinity, West and East Humboldt Mountains in Nevada, alt. 5–6000 ft., June, July. Also from Southern Utah (Palmer)." The figure we give is from a specimen of a secondary branch or shoot, forwarded by Mr. W. Thompson, of Ipswich, who flowered it in August of the present year from American seeds; he informs me that it attains a height of three to four feet, from which, and Watson's attributing to it a stature of two to five feet, I judge that it must be altogether the grandest and most beautiful known species of the genus. Though coming from so southern a latitude, 32°–42° N., appears to be quite hardy.

Descr. Quite glabrous and glaucous, except the inflorescence, which is described as minutely glandular pubescent in native specimens. *Stem* tall, erect, robust, cylindric, often branched above. *Leaves*, the lower ovate-oblong or lanceolate subacute, four to five inches long, long petioled, coarsely toothed; the upper more deltoid-ovate, connate by their very broad bases. *Panicle* much branched, thyrsoid, a foot long, strict, erect, very many-flowered, leafless; bracts and bracteoles small, subulate-lanceolate, green. *Flowers* erecto-patent, one and a half inches long. *Sepals* ovate-lanceolate, acuminate. *Corolla-tube* constricted at the base, then dilated campanulate and ventricose, especially below; upper surface rose-purple, lower almost white; limb 2-lipped, upper lip broad, recurved, 2-lobed, dark purple, lower of 3 equal rounded lobes also recurved, pale rose with purple streaks at the base of each lobe. *Stamens* included, quite glabrous, filaments slender, curved; anthers short, reniform; staminode with a slender stipes and spathulate densely vilious blade that lies on the lower lip, and is exserted. *Ovary* glabrous; style very slender.—*J. D. H.*

Fig. 1, Portion of side shoot and leaf; 2, portion of upper part of stem and upper leaves:—*both of the natural size*; 3, calyx and ovary; 4, base of corolla, stamens and staminode:—*magnified.*



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TAB. 6065.

SAXIFRAGA KOTSCHYI.

Native of Asia Minor.

Nat. Ord. SAXIFRAGACEÆ.—Tribe SAXIFRAGEÆ.

Genus SAXIFRAGA, *Linn.*; (*Benth. & Hook. f. Gen. Pl.*, vol. i. p. 635).

SAXIFRAGA (Aizoonia) *Kotschyi*; cæspitoso-pulvinaris, foliis parvis in caudiculos duros oblongos floriferos dense imbricatis oblongo-obovatis apice rotundatis crasse coriaceis glabris membranaceo-marginatis integerrimis v. basin versus denticulatis ambitu remote foveolatis, caulibus floriferis erectis glanduloso-pilosis foliosis, foliis spathulato-obovatis apiculatis, cymis paucifloris, floribus breviter pedicellatis inconspicuis, calycis tubo obconico ovario adnato, lobis triangularibus erectis, petalis parvis spathulatis, staminibus (imperfectis?) brevibus discum marginantibus, stigmatibus reniformi-capitatis.

S. Kotschyi, *Boiss. Diagn.*, ser. ii. part 2, p. 65; *Fl. Orient.*, vol. ii. p. 804.

This is one of the group of Saxifrages that forms dense hard cushion-shaped masses on the mountains of the South of Europe and Western Asia, where they are exposed to great summer heat and winter cold, without the humidity of a more northern or western climate. They are consequently very difficult to cultivate in England; and where they have succeeded they never form the luxuriant masses that they do in the Mediterranean region. *S. Kotschyi* is a native of precipitous rocks in the Cilician Taurus, at an elevation of 6–9000 feet, as also of the mountains of Armenia and Cataonia, all in Asia Minor, where it was discovered by Aucher. Eloi, the French explorer on the Thessalian Olympus. The specimen here figured flowered in the Royal Gardens (where it has been in cultivation for a good many years) in May, 1873, and bears evidently imperfect flowers, the petals being smaller than in the native specimens, and the stamens and the styles quite arrested in growth.

DESCR. Densely tufted rosettes, which are bluish and glaucous green, oblong or cylindric, and one-half to two inches long by one-half to three-quarters inch in diameter, forming hard, almost incompressible masses from the rigidity of the close-set spreading leaves. *Leaves* one quarter to one-third inch long, closely imbricate, spreading, obovate, obtuse, apiculate, shining, concave above, obscurely keeled beneath, margin white and membranous, sometimes erose towards the base, with a few distant impressed points that are very obscure in a living state, shining on both surfaces. *Flowering-stems* one inch to three inches high, strict, erect, stout, with many reniform spathulate erecto-patent cauline leaves, which are tinged red, and clothed at the margin and back with glandular hairs, as on the stem and inflorescence. *Flowers* cymose, few, erect, shortly pedicelled, one-quarter to one-third inch in diameter. *Calyx-tube* turbinate or obconic, adnate to the ovary; lobes erect, triangular, acute. *Petals* yellow, a little longer than the calyx in the Kew specimens, twice as long in wild ones, spathulate. *Stamens* imperfect in the Kew specimen, exserted in the native ones. *Stigmas* capitate in the cultivated specimens, sessile on the two conical tops of the ovary, terminating slender styles in the wild ones.—*J. D. H.*

Fig. 1, Leaf of a rosette; 2, do. of a flowering stem; 3, flower; 4, ovary and stamen:—*all magnified.*

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TAB. 6066.

CELSIA BETONICÆFOLIA.

Native of N. W. Africa.

Nat. Ord. SCROPHULARINEÆ.—Tribe VERBASCEÆ.

Genus CELSIA, *Linn.*; (*Benth. in DC. Prod.*, vol. x. p. 244).

CELSIA *betonicæfolia*; pubescenti-pilosa v. glabra, superne viscoso-puberula, caule subsimplici, foliis longe petiolatis oblongis elliptico-oblongisve obtusis integris v. inferioribus basi lyrato-pinnatifidis crenatis venis impressis, superioribus minoribus sessilibus, summis cordato-amplexicaulibus, floribus longiuscule v. longe pedicellatis, sepalis latiusculis integerrimis serrulatisve, corollæ aureæ extus brunneæ lobis rotundatis supremo 2-partito, staminibus inferioribus glaberrimis, antheris linearibus adnatis, superiorum filamentis brevibus clavatis lanatis.

CELSIA betonicæfolia, *Desfont. Fl. Atlant.*, vol. ii. p. 58. *Benth. in A. DC. Prod.*, vol. x. p. 245. *Jacq. Fragment.*, p. 65, t. 96.

A little-known plant, discovered by Desfontaines in fields in Algeria, subsequently in Tangiers by Salzmann, and lastly by myself (in 1839), on the top of a peak in the Island of St. Jago, one of the Cape de Verd group, a station very far removed from the above. It is remarkable that it has not been detected in the Canary Islands. It is closely allied to the widely distributed *C. cretica*, L. (Tab. nost. 964), which ranges from the Canary Islands to the East Indies, differing in usually less divided leaves and long pedicels of the flowers.

In Marocco two varieties occur, one nearly glabrous, the other woolly; both are found in the valleys of the Greater Atlas, ascending to 5000 feet, as also in fields on the plains; the lower leaves are sometimes pinnatifid throughout. The specimen here figured was flowered by Mr. Niven of the Hull Botanic Gardens, in August last, I believe from seeds procured by Mr. Maw in Marocco, in 1871.

DESCR. Biennial, two to three feet high, glabrous or sparingly pubescent, glandular above. *Stem* erect, simple, or paniculately branched above, terete, rigid. *Leaves* three to six inches long, long-petioled, oblong or elliptic or lanceolate-oblong, obtuse or subacute, crenate or toothed or doubly toothed, the lower sometimes lyrate-pinnatifid at the base, rugose with impressed nerves above; the upper smaller, sessile; uppermost ovate-cordate and semiamplexicaul; petiole one to three inches long. *Raceme* sometimes eighteen inches long, many-flowered; pedicels half to one inch long, longer than the sessile toothed acute bracts. *Flowers* one inch in diameter. *Sepals* broadly ovate, toothed or entire, margins and apex recurved. *Corolla* golden yellow, suffused with red-brown externally, orange-red on the throat; lobes rounded, concave, margins crenulate. *Stamen* exserted, two lower declinate, quite glabrous, with narrow adnate anthers; two upper much shorter, filament clavate densely bearded, anther like that of the lower stamens, but smaller. *Ovary* pubescent. *Capsule* globose.—*J. D. H.*

Fig. 1, Flower with corolla removed; 2, corolla laid open and stamens; 3, anther of lower stamen; 4, one of the upper stamens:—*all magnified.*

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TAB. 6067.

ARISTOLOCHIA TRICAUDATA.

Native of Eastern Mexico.

Nat. Ord. ARISTOLOCHIEÆ.

Genus ARISTOLOCHIA, *Linn.*; (*Duchartre in A. DC. Prod.*, vol. xv. p. 420).

ARISTOLOCHIA (Siphisia) *tricaudata*; arborescens, ramis sarmentosis nodoso-flexuosis articulatis, foliis breviter petiolatis ovato-lanceolatis acutis supra glabris subtus nervis pilosis, pedunculis axillaribus basi bracteolatis rubris, ovario angusto, perianthii tubo basi subsaccato mox refracto dilatato abrupte recurvo, ore late expanso unilabiato margine superiore tenuiter recurvo emarginato, inferiore in ligulas 3 longissime subulatas flexuosas 4-pollicares desinente, gynostemio breviter stipitato 5-lobo, lobis ovatis erectis, antheris 6 angustis per paria gynostemii segmentis adnatis.

ARISTOLOCHIA tricaudata, *Duchartre in Lem. Illust. Hortic.*, vol. xii.; *Misc.*, p. 97, *et* vol. xiv. t. 522.

A native of the forests of Chiapas, in the extreme east of Mexico, where it was discovered by Ghiesbreght, an indefatigable explorer, and transmitted by him to M. Verschaffelt of Ghent, by whom it was published, in 1866, with an excellent plate in the "Illustration Horticole." When describing it, M. Verschaffelt pays a just tribute to the merits of M. Ghiesbreght, of whom he say, "No botanist or horticulturist is ignorant of the indefatigable zeal of this collecting botanist, who during the last thirty years has explored the hot regions of the American continent, whence his numerous discoveries have enriched our Garden and Herbarium with many handsome and interesting plants." *H. tricaudata* flowered in the stove at the Royal Gardens in August last, on a plant received from Mr. Bull in the previous year. It is said to recommend itself to the cultivator from the negative quality of wanting the detestable odour so prevalent amongst its congeners. It belongs to the tribe *Siphisia*, which includes but few species, some of which are North American, as the well-known *A. Sipho* of

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our gardens, and the others Indian, as *A. saccat* (Tab. nost. 3640) and *A. Thwaitesii* (Tab. nost. 4918).

Descr. Arborescent; bark grey, cracked; branches sarmentose, jointed, zigzag, remarkably swollen at the nodes; young parts petioles and nerves of the leaf beneath covered with a short red tomentum. *Leaves* five to eight inches, oblong, acute or acuminate, rounded and often unequal at the base, deep green, rugose and glabrous above, with impressed nerves, pale beneath with much raised pubescent nerves; petiole one-fourth to one-third of an inch, stout, pubescent. *Flowers* solitary, inserted at the nodes; pedicels red, one-half to three-fourths of an inch, on a very short 2-bracteolate peduncle. *Ovary* narrow, purple. *Perianth-tube* short, pale and subinflated at the rounded base, suddenly refracted, the ascending part at once dilating into a concave wide limb, one and quarter inches in diameter, with an obliquely truncated much dilated mouth that is contracted to a triangular throat, forming a fold with a deeply intruded border; limb maroon-red outside and very dark purple-brown inside, upper margin slightly recurved, notched in the middle, lower split into three diverging long subulate tails four inches long, of a very dark red-brown colour, half inch broad at the base. *Column* short, capitate, 3-lobed, shortly stipitate; lobes (stigmas) triangular, erect. *Anthers* six, linear, in three pairs; adnate to the face of the lobes.—*J. D. H.*

Fig. 1, Longitudinal section of perianth-tube, showing the intruded fold:—*of the natural size*; 2, top of column:—*magnified.*

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TAB. 6068.

CRASSULA SAXIFRAGA.

Native of South Africa.

Nat. Ord. CRASSULACEÆ.

Genus CRASSULA, *Linn.; (Benth. & Hook. f. Gen. Pl.*, vol. i. p. 657).

CRASSULA (Tuberosa) *Saxifraga;* glaberrima, radice tuberoso, caule breviusculo simplici v. ramoso, foliis paucis amplis oppositis breviter petiolatis orbiculatis subreniformibusve coriaceo-carnosis lobulatis, lobulis crenulatis subtus sanguineis v. viridibus, pedunculis terminalibus elongatis gracilibus, cymis parvis multifloris corymbosis, sepalis 5 ovatis dorso infra apicem glandulosis petalis ovato-oblongis acutis ter brevioribus, squamis hypogynis minutis, carpellis oblongis in stylos recto breviusculos attenuatis.

CRASSULA Saxifraga, *Harv. in Harv. & Sond. Flor. Cap.*, vol. ii. p. 357.

For this very singular and brilliantly coloured S. African plant the Royal Gardens are indebted to Principal MacOwan, of Gill College, Somerset East, who transmitted tubers of it from that district, which flowered in June of the present year. It would seem to have a wide South African distribution, being found on mountain sides from the extreme south-west, as on the Muysenberg mountain, near Simon's bay, to Port Elizabeth and Albany. It is nearly allied to *C. Septas*, Thunb., which is a small plant, with fewer very much larger umbellate long-pedicelled flowers that have six to nine narrow petals. The *Septas globifera* of this Magazine (Tab. nost. 1472), which Harvey has considered to be a luxuriant garden state of *C. Septas,* is much nearer and may be a variety of this, but has, according to the plate, usually 6-merous flowers, and smaller leaves, more cuneate at the base. Judging from dried specimens, Drege's *Septas capensis L. a.* is *C. Saxifraga.* The brilliant red colouring of the under-surface of the leaf is not a constant character.

DESCR. Whole plant quite glabrous. *Root* tuberous, as large as a hazel nut, or even walnut. *Stem* two to four inches high,

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inclined or erect, as thick as a goose-quill, cylindric, red. *Leaves* two to four pairs, two to three inches diameter, opposite, connate by their short broad petioles, very fleshy, flat, horizontal, slightly concave above, orbicular or subreniform, margin lobulate, the lobules crenulate, upper surface bright green with broad flabellate whitish nerves that are not impressed, under-surface blood-red, with very faint nerves. *Scape* terminal, four to six inches high, slender, strict, erect, with a few subulate scales, pale-pink. *Cyme* one to two inches in diameter, many-flowered, sub-3-chotomously divided; bracts and bracteoles minute, subulate, pedicels one-eighth to one-third of an inch long. *Flowers* one-fourth of an inch in diameter, very pale flesh-coloured. *Sepals* ovate-oblong, green, with a gland at the back below the tip of each. *Petals* of the same shape, but three times larger, subacute, spreading. *Anthers* globose, red-brown. *Hypogynous-scales* minute. *Carpels* ellipsoid, narrowed into straight short styles.—*J. D. H.*

Fig. 1, Margin of leaf; 2, flower; 3, the same, with the corolla removed; 4, carpels and hypogynous scales:—*all magnified.*

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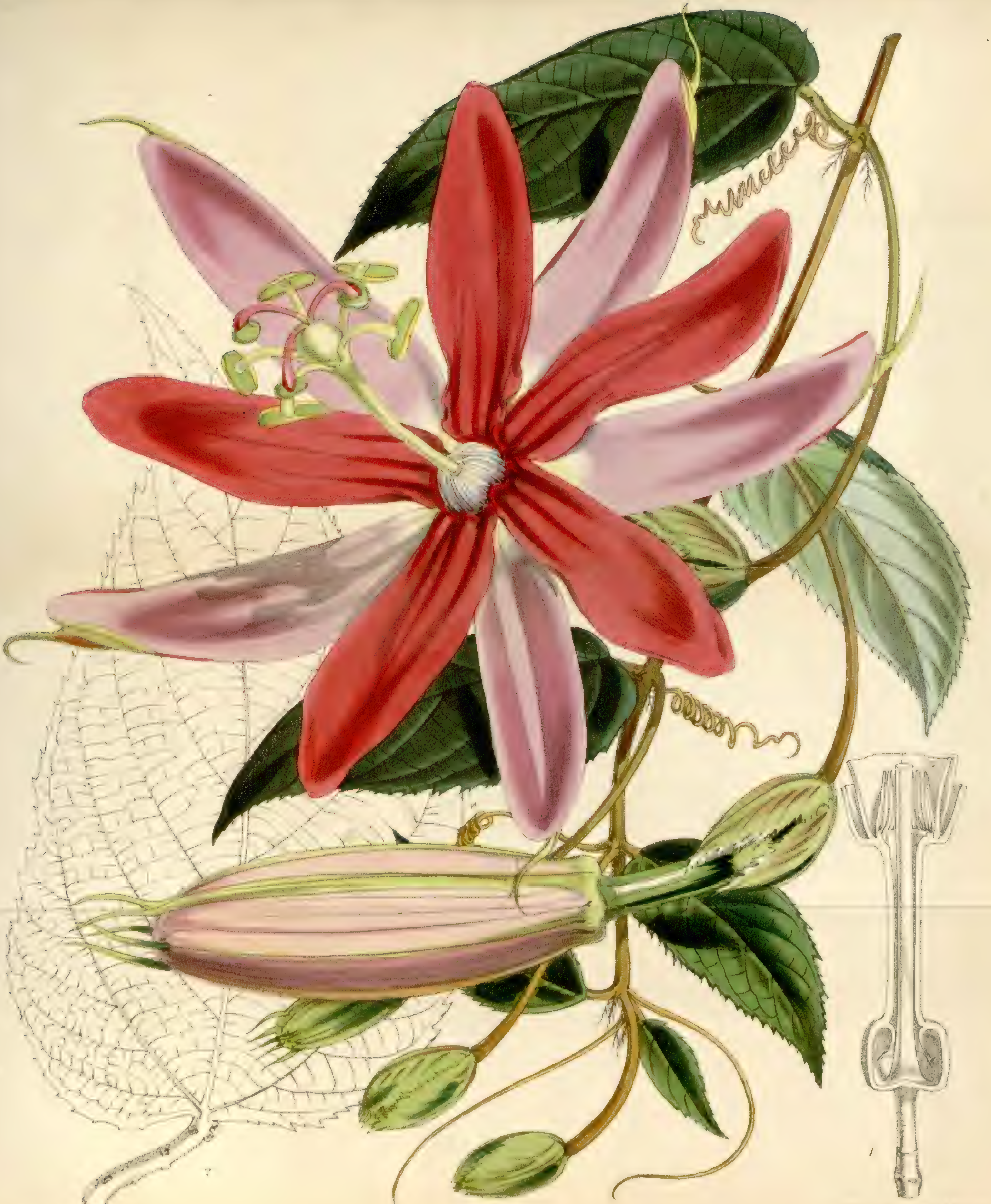

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TAB. 6069.

PASSIFLORA (TACSONIA) INSIGNIS.

Native of Peru?

Nat. Ord. PASSIFLORACEÆ.—Tribe PASSIFLOREÆ.

Genus PASSIFLORA, *Linn.*; (*Benth. & Hook. f. Gen. Plant.*, vol. i. p. 810.)

PASSIFLORA (Tacsonia) *insignis;* ramulis petiolis pedunculis foliisque subtus lanatis, foliis ovato-oblongis lanceolatisve acuminatis dentatis basi subcordatis supra rugosis nitidis, petiolo brevi glanduloso, stipulis fimbriatis, flore maximo longe pedunculato, bracteis ovato-oblongis laciniato-serratis concavis, sepalis tubo ter longioribus lineari-oblongis obtusis dorso carinatis et infra apicem longe calcaratis, petalis paulo brevioribus ecalcaratis, corona externa e filis brevibus 1-seriatis, interna bulbo basi tubi inclusa membranacea deflexa margine lacera, gynandrio gracili exannulato, ovario villoso.

TACSONIA insignis, *Masters in Gard. Chron.*, 1873, p. 1112, fig. 239.

I cannot do better than introduce this plant in the words of Dr. Masters, who when first describing it says, "In so beautiful a genus as *Tacsonia*, and mindful especially of the very beautiful *T. Van-volxemii*, it is difficult to find adjectives at once distinctive and expressive wherewith to describe the several forms." Of its history unfortunately too little is satisfactorily known. A specimen was sent to Dr. Masters by Mr. Anderson, gardener at Sowerby House, Hull, with the information that it was raised by him from seed sent, some years previously, from South America, probably Peru, by Mr. Yarborough Greame. The specimen figured here was sent by Mr. Anderson, at the request of Mr. Backhouse of York, in September last.

T. insignis is without question the finest species of the genus, whether in foliage or flower, owing to the bright glossy deep green of the rugose upper surface of the leaf, and the gigantic size of the flower, the sepals of which are violet crimson, and the petals of a deeper and redder hue. Dr. Masters observes that it belongs to the section *Poggendorffia* of

Passiflora, characterized by the filamentous corona; its affinity with *T. Van-volxemii* (Tab. 5571), *T. quitensis* (Tab. 5876), *T. eriantha* (Tab. 5750), and *T. mollissima* (Tab. 4187), is evident; but in all these the corona is reduced to glands, and the leaves are lobed.

DESCR. A tall woody climber. Young parts, petioles, peduncles and leaves beneath clothed with pale or dark rusty-brown matted wool. *Leaves* five to seven inches long, ovate or oblong or lanceolate-ovate from a cordate base, obscurely lobed, toothed, upper surface glossy wrinkled; petiole short, stout, glandular. *Stipules* small, pinnatisect. *Flowers* solitary, axillary, six to eight inches diameter; peduncle very long, four to six inches; bracts opposite, below the flower, oblong-ovate, fimbriate-toothed, concave, green, tomentose. *Perianth* tomentose externally; tube two inches long, with a depressed-globose bulb half to three-quarters inch diameter at the base. *Sepals* linear-oblong, obtuse, concave, keeled, violet-crimson, the keel green and terminating below the rounded apex in a green spur one inch long. *Petals* rather shorter than the sepals and darker crimson, rounded at the tip, nearly flat. *Corona* half inch long, of one series of white threads, mottled with blue; inner corona an inflexed lacerate membrane at the base of the tube above the bulb. *Gynandrium* very long, slender, glabrous. *Ovary* subglobose, densely lanate. *Anther* and *stigmas* as in its congeners.—*J. D. H.*

Fig. 1, Vertical section of tube of perianth; 2, leaf:—*both natural size.*

6070

W. Fitch, del et lith.

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TAB. 6070.

GAULTHERIA INSIPIDA.

Native of Ecuador and New Grenada.

Nat. Ord. ERICEÆ.—Tribe ANDROMEDEÆ.

Genus GAULTHERIA, *Linn.*; (*DC. Prod.*, vol. vii. p. 592).

GAULTHERIA *insipida;* ramulis petiolis foliisque subtus ad nervos sparse strigoso-pilosis, foliis breviter petiolatis ovatis acuminatis integerrimis v. serrulatis ciliatis supra glabriusculis subtus nervosis, racemis hispidulis folio brevioribus, bracteis ovatis lanceolatisve pedicello brevioribus, corolla parva conica glabra, calycis tubo basi 5-lobo lobis triangularibus, antheris ecalcaratis, fructu albò insipido 5-lobo.

GAULTHERIA insipida, *Benth. Plant. Hartweg.*, 225; *Walp. Rep.*, vol. vi. p. 415.

G. petræa, *Weddell Chlor. Andin.*, vol. ii. p. 172.

A pretty little half-hardy shrub, of which the old leaves in autumn assume a most beautiful rich red-brown or claret colour on the upper surface, and which bears, at the same time, a profusion of pearl-like white fruits, each with five crimson spots on the crown, answering to the lobes of the baccate calyx, which are scarlet in flower. It is apparently a common plant in the Andes of Ecuador and New Grenada. It was discovered by Colonel Hall at 7000 feet elevation, near Camino Real in the valley of Loa. Professor Jameson next sent it from woods on Pilzhum and Pichincha, at elevations of 9–10,000 feet. Goudot gathered it on the peak of Tolimà, to the westward of Sta. Fe de Bogota, in New Grenada; Hartweg, near Quito; and Weddell, in the province of Pasto. The above localities embrace a range of nearly 800 miles of the Andes. The fruit is described as eatable, but tasteless.

I am indebted for the specimens here figured to Mr. Isaac Anderson Henry, F.L.S., who raised it from seeds sent by Professor Jameson upwards of ten years ago, and who has both flowered and fruited it.

DECEMBER 1ST, 1873.

Descr. A shrub six to eight feet high, with long slender sarmentose branches, which, as well as the petioles and leaves beneath, especially on the nerves and racemes, are sparsely strigose with rigid bristles. *Leaves* two to three inches long, shortly petioled, ovate or oblong-ovate, acuminate, serrulate or almost entire, coriaceous, bright green and shining above, with impressed nerves, paler beneath with very prominent reticulated nerves; old leaves highly coloured, claret-brown, rarely deep blood-red; petioles one-quarter inch long. *Racemes* axillary, two by eight inches, 8–10-flowered; rachis and peduncle hispid; bracts small shorter than the pedicels, which are one-quarter inch long, lanceolate, acute, green. *Flowers* about one-third inch long, inclined. *Calyx-tube* broad, green, with the base intruded and 5-lobed; teeth broadly triangular, acute, scarlet. *Corolla* conical, white; teeth small, suberect. *Filaments* curved, puberulous; anthers oblong, not spurred behind, pores oblong, anticous. *Ovary* pilose at the top. *Fruit* one-third inch in diameter, subglobose, 5-lobed, white, waxy, fleshy, with 5 crimson spots on the crown.—*J. D. H.*

Fig. 1, Flower; 2, stamen; 3, ovary:—*all magnified.*

6071

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Tab. 6071.

ALOE (Apicra) deltoidea.

Native of South Africa.

Nat. Ord. Liliaceæ.—Tribe Agapantheæ.

Genus Aloe, *Linn.; (Endl. Gen. Plant.*, p. 143).

Aloe (Apicra) *deltoidea;* robusta, caulescens, foliis $\frac{3}{4}$–1-poll. longis quinquefariis confertissimis horizontalibus crassis deltoideo-ovatis acuminatis pungentibus supra planis subtus convexis carinatis marginibus planiusculis carinaque superne eroso-serrulatis luride viridibus lævissimis, racemo spicæformi elongato flexuoso multifloro, pedicellis brevissimis, bracteolis deltoideo-lanceolatis pedicellum superantibus, perianthii erecti tubo $\frac{1}{3}$-pollicari oblongo-cylindraceo virescente lobis brevibus late obovatis sub-2-lobis erosis albis ter longiore, staminibus inæquilongis inclusis, antheris brevibus, ovario lineari-oblongo, stylo brevicurvo.

This singular succulent belongs to the same section of *Aloe* with *A. foliolosa* (Tab. nost. 1352), *pentagona* (Tab. nost. 1338), *spirella*, *imbricata* (Tab. nost. 1445), *spiralis*, etc., of Haworth, which are all closely allied, having 5-fariously densely imbricating leaves, that clothe the stem throughout, and terminal racemes of erect flowers, with an oblong tube and short segments. It differs from the first-named of these chiefly in size, and in the leaves not being spirally disposed except on the young shoots, though I should much doubt this character being of any value. It has long been cultivated in the Royal Gardens, where there is no record of its introduction. The perfect regularity with which the leaves are superposed in five series, and the columnar stem, render it a very striking object in the greenhouse. It flowers in May, and is easily propagated by offshoots from the base of the stem.

Descr. *Stem* strict, erect, wholly clothed with leaves from the very base upwards, emitting stout cylindric roots, and surculi from the base; diameter across the leaves two inches. *Leaves* three-quarters to one inch long, most densely 5-

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fariously imbricate, quite horizontal, deltoid-ovate, acuminate, pungent, deep shining green, quite smooth and glabrous, upper surface nearly flat, under convex with a slight keel, margins thick and flattened, the edges of the margin as well as the keel beyond the middle are minutely serrulate. *Raceme* spiciform, a foot long; peduncle and rachis stout, cylindric, slightly compressed towards the base, light-brown, glaucous, with two or three scattered ovate-lanceolate bracts. *Flowers* lax, very numerous, erect, one-third inch long, greenish-white; bracteole deltoid, much exceeding the very short pedicel, appressed to the perianth, greenish-white. *Perianth-tube* cylindric-oblong, light green, almost terete; limb of six short broad obovate obscurely two-lobed and erose segments. *Stamens* included, unequal; anthers shortly oblong. *Ovary* subcylindric, style curved.—*J. D. H.*

Fig. 1, Back, and 2, front, of a leaf; 3, transverse section of do.; 4, flower pedicel and bracteole; 5, vertical section of perianth :—*all magnified.*

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TAB. 6072.

SYRINGODEA PULCHELLA.

Native of South Africa.

Nat. Ord. IRIDEÆ.—Tribe IXIEÆ.

Genus novum, SYRINGODEA.

GEN. CHAR.—*Perianthium* membranaceum, hypocraterimorphum; tubus gracillimus, elongatus; limbi lobi 6, æquales, patentes, cuneato-spathulati, 2-lobi, incurvi, glaberrimi. *Stamina* 3, fauci perianthii inserta, æqualia, erecta, filamentis subulatis brevibus; antheræ basifixæ, lineari-subulatæ, obtusæ, basi sagittatæ, flavæ. *Ovarium* lineari-obovoideum, subcylindraceum, 3-loculare; stylus gracillimus, elongatus, apice in stigmata 3 papillosa linearia emarginata fissus; ovula in loculis ∞, 2-seriata. *Fructus* . . . . —Herbæ *montium* Africæ australis *ditione* Græfreinet *incola, pusilla, bulbosa; bulbis ovoideis, squamis brunneis lævibus non reticulatis; fibris radicalibus capillaribus.* Folia *patentia, fere capillaria, squamis membranaceis albis basi inclusa, teretia, antice obscure canaliculata.* Spathæ 2, *hyalinæ, basi conduplicatæ, dein lanceolato-subulatæ acuminatæ, perianthii tubo ter breviores.* Flores *solitarii, breviter pedicellati, perianthii tubo fere bipollicari pallide rubro, basi spathis occluso; limbo* 1 *poll. diametro, lobis extus purpureis intus pallide-lilacinis.*

After much consideration of the ill-defined genera of the allies of *Ixia* and *Trichonema*, I find myself compelled to create a new genus of this lovely little plant, which belongs to Klatt's tribe of *Ixieæ*, characterized by the two spathes, separate equal filaments, and linear stigmas. From all the genera of this tribe it differs in the solitary flower and 2-lobed perianth segments. *Trichonema* is its nearest ally in most points, but has usually a short perianth-tube, or if a long one it is funnel-shaped, its stamens are inserted within the perianth-tube, and the stigmas are divided. *Galaxia* has a long slender tube, but in it the filaments are connate, and the stigmas are lamellar and multifid.

Syringodea pulchella is one of Mr. Harry Bolus' interesting discoveries, and was found in plains amongst the Sneeuwberg mountains at an elevation of 4600 feet above the sea, flowering in April. He sent bulbs to Kew, which flowered in September of the present year. The name is derived from συριγγώδης, fistular, in allusion to the slender perianth-tube.

Descr. *Bulbs* ovoid, the size of a hazel-nut; scales appressed, brown, smooth, not reticulated. *Leaves* capillary, spreading, green, two to three inches long, terete, with a slight groove in front, enclosed at the base in white membranous sheaths one inch long, with a few ragged brown ones outside. *Spathes* 2, hyaline, oblong and conduplicate below, subulate-lanceolate above, about one-third the length of the perianth-tube. *Flowers* solitary, the base of the perianth-tube and ovary immersed in the sheaths, very shortly pedicelled. *Perianth* salver-shaped; tube two inches long, very slender, terete, not swollen upwards, pale purple; limb one inch in diameter, lobes connate-spathulate, 2-lobed, incurved, dark purple outside, with white edges, lilac within. *Stamens* 3, inserted at the mouth of the perianth; filaments five, very short, subulate; anthers yellow linear-subulate from a sagittate base obtuse at the tip. *Ovary* one quarter inch long, narrowly obovoid, 3-celled; style very long, capillary, exserted, divided at the summit into three revolute linear entire stigmas; ovules numerous, 2-seriate in each cell. *Fruit* unknown.—*J. D. H.*

Fig. 1, Section of apex of leaf; 2, flower, with the perianth segments removed; 3, ovary, style, and stigma; 4, transverse, section of ovary:—*all magnified.*

6073.

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TAB. 6073.

AQUILEGIA LEPTOCERAS VAR. CHRYSANTHA.

Native of New Mexico and Arizona.

Nat. Ord. RANUNCULACEÆ.—Tribe HELLEBOREÆ.

Genus AQUILEGIA, *Linn.;* (*Benth. & Hook. f. Gen. Plant.*, vol. i. p. 8).

AQUILEGIA leptoceras, *Nutt. in Journ. Acad. Philadelph.*, vol. vii. p. 8; *Tab. nost.* 4407.

Var. FLAVA, *A. Gray Plant. Wright*, pt. ii. p. 9; elata, 2–4-pedalis, racemosa, floribus saturate flavis, sepalis oblongo-lanceolatis, calcaribus 2½-pollicaribus.—A. chrysantha, *A. Gray in Proc. Amer. Acad., ined., and in Gard. Chron.* 1873, p. 1335 and 1501, *cum Ic. Xylog.*, f. 304.

It is with great diffidence that I dissent from my friend Prof. Gray's opinion of the specific rank of this Columbine, which he first regarded as a variety (*flava*) of the American *A. leptoceras,* but more recently distinguishes as a species under the name of *A. chrysantha.* In his remarks upon the *A. chrysantha,* which he has communicated to the *Gardener's Chronicle,* Dr. Gray relies principally for its distinction upon, 1. The stature; 2. different geographical range and altitude; 3. its later and longer period of flowering; 4. its colour; 5. its smaller flowers. Now as regards the first of these, it appears that *A. leptoceras* is stated to be one to one and a half feet high, and *A. chrysantha* four feet; but we have dried specimens of the former that must have been at least three feet high (perhaps much more), and I have found the European *A. vulgaris,* which in England is one to two feet high, attaining nearer four feet in the Atlas Mountains. As regards distribution, *A. leptoceras* ranges from the head waters of the Columbia to those of the Colorado, *i.e.*, from 40° to 35° N., and *A. chrysantha* ranges from New Mexico to Arizona, *i.e.*, from 35° to 31° N. As the altitude of the habitat of *Chrysantha* is not given, I cannot compare it with that of *Leptoceras,* but would instance as a far greater extension of distribution in longitude and altitude, the above mentioned *A. vulgaris,* which has a range of upwards of 2000 miles in latitude, namely, from Mid-Norway in latitude 64°, to the Atlas Mountains in latitude 32°, descending to 4000 feet in the valleys of the latter. Of the period of flowering I can say nothing; but a comparison of the figure now given with the Magazine plate of *A. leptoceras* (Tab. 4407) or with that in the Botany of Beechey's Voyage (Tab. 72), under the name of *macrantha,* shows no appreciable difference in the size of the flowers, and the spurs are even longer in dried specimens of *A. leptoceras.* With regard to colour, though *A. leptoceras* is usually described as only blue and white, Nuttall, its discoverer, calls it ochroleucous, and Burke, who collected it in the Snake country, sent specimens thus coloured. These facts, taken in conjunction with the known variability of the genus, lead me to adopt Mr. Backhouse's opinion (appended to Dr. Gray's description in the *Gardener's Chronicle*), that this is but a form, and not a very decided one, of the American *A. leptoceras.*

There is still a doubt as to the propriety of adopting for this plant the name of *leptoceras,* which was given originally by Fischer, to what is now known to be a very different one from Siberia (see *Bot. Reg.*, vol. xxxiii. t. 64), and of which I have examined indifferent specimens from the St. Petersburg Garden. In the Flora Indica, published in 1855, Dr. Thomson and I have referred this, which has quite short spurs, to a form of *A. vulgaris,* identical with *A. pyrenaica,* DC., an opinion which, if accepted, will admit of *leptoceras* being retained for the American plant.

I am indebted to Mr. Backhouse for the specimen here figured, which flowered with him in June last, and was very fragrant.—*J. D. H.*

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